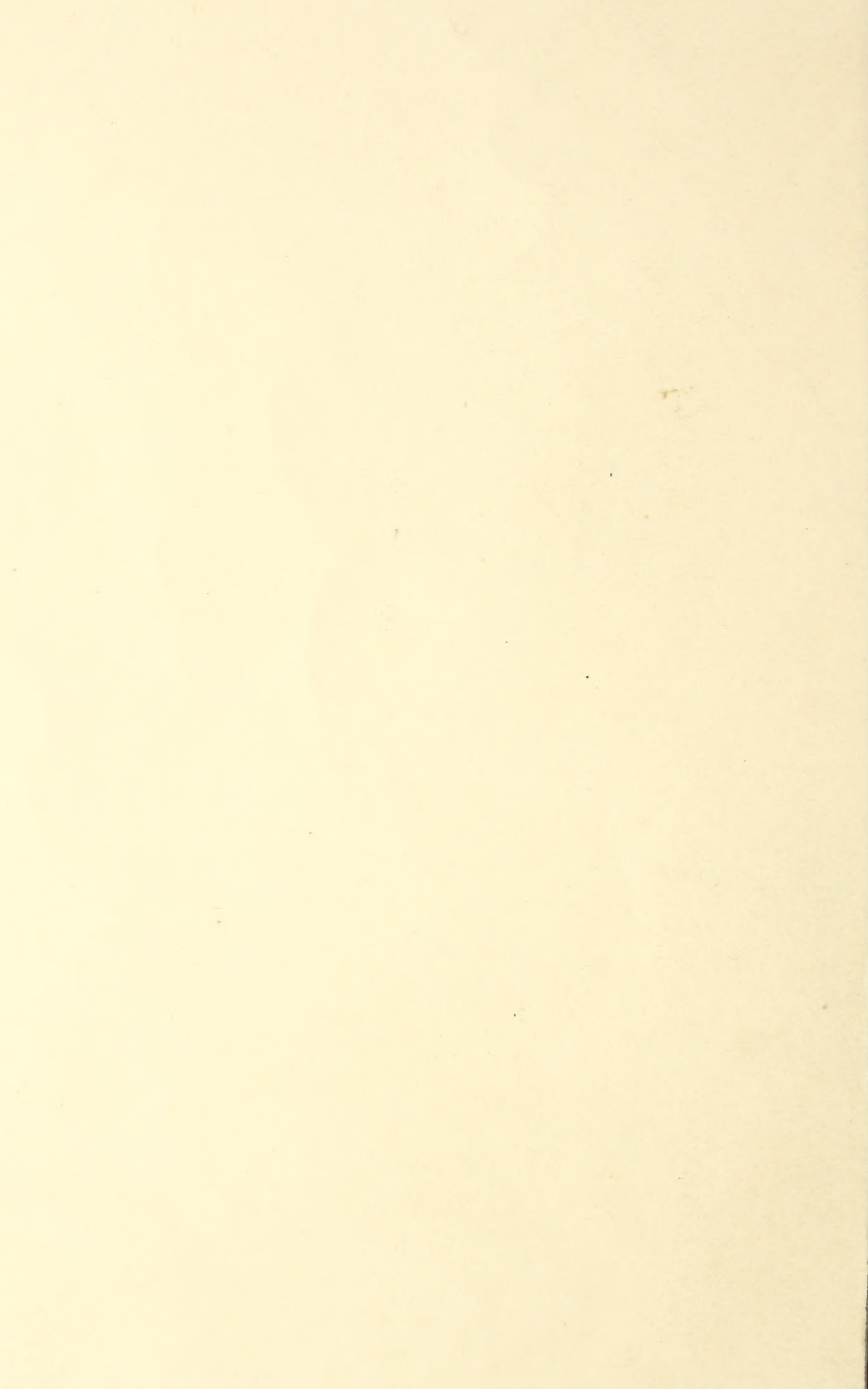


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UNITED STATES DEPARTMENT OF AGRICULTURE



DEPARTMENT BULLETIN No. 1258



Washington, D. C.



October 17, 1924

FARM ORGANIZATION AND MANAGEMENT IN CLINTON COUNTY, INDIANA

A BUSINESS ANALYSIS OF 100 FARMS, IN FOREST AND
JOHNSON TOWNSHIPS, FOR EIGHT YEARS
1910, AND 1913 TO 1919, INCLUSIVE

By

H. W. HAWTHORNE, Associate Agricultural Economist

and H. M. DIXON, Farm Economist

Bureau of Agricultural Economics

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This bulletin presents data from a business analysis of 100 farms in Forest and Johnson Townships, Clinton County, Ind., over a period of eight years. The first year's study was in 1910; and the work was again taken up for the year 1913 and continued seven successive years to 1919, inclusive.¹

In 1914 the investigation covering the farm business year, March 1, 1913, to March 1, 1914, was resumed in the Indiana area, to be carried over a number of successive years. The World War soon affected the prices received for American agricultural products and the cost of operating American farms. The investigation covering more than one year after the signing of the armistice therefore has

¹ The work in this area was begun by E. H. Thomson for the year 1910. In addition to the authors, the following investigational force assisted in one or more years of this study: H. F. Williams, O. S. Rayner, E. M. McGrew, E. L. Currier, C. Wentzel, W. C. Funk, E. D. Strait, F. H. Shelledy, C. C. Taylor, H. R. Smalley, H. N. Humphrey, J. C. Rundles, T. H. Summers, W. I. Myers, Charles E. Miller, A. P. Brodell, R. D. Jennings, Frank Montgomery, and Bruce McKinley, Office of Farm Management; and W. L. Elser, Lynn Robertson, and W. W. Sylvester, of the Indiana Experiment station. Some result of the first year of this study were published, with similar investigations in Cass and Menard Counties, Ill., and Greene and Guthrie Counties, Iowa, in Department of Agriculture Bulletin 41 (Thomson and Dixon); and of the first seven years in Department of Agriculture Bulletin 920 (Dixon and Hawthorne). This study for each year is for the farm year, March 1 to March 1. The method used in this farm business analysis is described in Farmers' Bulletin 1139.

the additional value of indicating profits accruing to American farmers during the war as compared to pre-war profits—during a period of widely varying prices.

The object of the investigation, in each instance, was to bring out factors influencing successful farm organization and management in representative parts of the Corn Belt.

The authors are greatly indebted to those who cooperated in the study, as the success of conducting these investigations over this period of time is primarily dependent upon the diligent and painstaking efforts of the men performing the field work and the cooperating farmers. The farmers showed increased interest in these studies from year to year. Some began keeping accounts, others kept accounts in more detail than formerly that the data might be more complete.

DESCRIPTION OF AREA.

The area under study, which is located about 40 miles north of Indianapolis, is typical of general crop and livestock farming in north-central Indiana. The land was originally covered with heavy hardwood timber, except for a few strips locally known as "prairie." The surface is level to slightly rolling; much of the land is tile drained; the main wagon roads are improved, most of them graveled; and railroad points are readily accessible the year round. Centralized schools and township high schools have replaced the "district school." General farming prevailed in the area during the period of this study, with corn, oats, wheat, and clover the leading crops, and hogs and cattle the most important livestock. Hogs, corn, oats, cattle, and wheat were the leading sources of income; hogs contributed almost as much as the others combined.

Clinton County was first settled in 1818. The Federal census reports of agricultural products for each 10 years, beginning with 1840, show corn by far the most important crop of the county. Wheat led oats in production up to and including the 1900 census, but since 1900 oats have led wheat. Hogs in Clinton County have always outnumbered other classes of livestock, save poultry. There were from two to four times as many hogs as cattle for successive census years, beginning with 1840. Sheep have decreased rapidly since 1900. In 1900 there was 1 sheep in Clinton County for every 7 hogs, while in 1920 there was but 1 sheep for every 17 hogs. There has been but little change in the number of dairy cows in the county since 1890.

The size of farms decreased from an average of 111 acres in 1860 to 84 acres in 1900, and then increased to 104 acres in 1920, while the number of acres of improved land per farm has steadily increased from 48 in 1860 to 95 in 1920.

The average capital per farm advanced from \$2,996 in 1860 to \$5,531 in 1900, \$13,472 in 1910, and \$27,037 in 1920. From 85 to 90 per cent of these values were in real estate.

The operating expenses of farms increased heavily from 1900 to 1920. Hired labor cost \$44 per farm in 1899; \$98 in 1909; and \$213 in 1919. Fertilizer cost \$2 per farm in 1899; \$3 in 1909; and \$51 in 1919.

Up to 1900 the agriculture of Clinton County was characterized by continuous expansion and no important change in the type of farming. About 1900, however, certain important changes, or read-

justments, began. The population of the county ceased to increase and the rural and country population began to decrease. In 1900 the population of the open country was 19,000; in 1920 it was only 14,000, a decrease of more than 25 per cent. The number of farms in the county began to decline, decreasing from about 3,000 in 1900 to about 2,400 in 1920, a 20 per cent decrease. The average size of farms, which had been decreasing, began to increase, going from 84 acres in 1900 to 104 acres in 1920.

Then there was an increase in the value of farm property from 1900 to 1920. The average value per farm more than doubled from 1900 to 1910, and again from 1910 to 1920.

DEFINITION OF TERMS.

Certain terms, as used in this bulletin, are defined as follows:

Farm.—All the land operated as one unit, that is, with one set of equipment.

Operator.—The one who directs the operations of the farm.

Owner.—The operator who owns the farm.

Owner-additional.—The operator who owns part and rents part of the farm.

Tenant.—The operator who rents all the farm.

Landlord.—The one who owns the rented farm.

Capital.—The value, at the beginning of the farm year, of all real estate, machinery, livestock, and other property used to carry on the farm business. It includes the value of the farm dwelling, but not the household furnishings.

Receipts.—Proceeds from the sale of crops produced during the farm year, the increase from stock, and the receipts from outside labor, rent of buildings, etc. The increase from stock is found by subtracting the sum of the amount paid for stock purchases and the inventory value at the beginning of the year from the receipts from stock products, sales of livestock, and the inventory value at the end of the year. If the value of crops, or supplies on hand at the end of the year to be carried over for the next year's business, was greater than at the beginning, the difference is considered a receipt.

Expenses.—Annual expenditures made in carrying on the farm business, including the value of the unpaid labor performed by members of the family, and depreciation on buildings and equipment, and excluding the value of the farmer's own labor. If the value of crops or supplies at the end of the year to be carried over for the next year's business was less than at the beginning, this is considered an expense. Household or personal expenses are not included.

Farm income.—The difference between receipts and expenses. It represents the value that may be withdrawn from the year's business without reducing the capital.

Labor income.—The amount left for the labor of the operator, after 5 per cent interest on the farm capital is deducted from the farm income. It represents what the farm has earned as a result of the labor and management of the operator, after earnings for the capital have been deducted. In addition to labor income, the operator receives a house to live in, fuel (when cut from the farm), garden products, milk, butter, eggs, etc. A "minus" labor income means no returns above food products, fuel, and house rent furnished by the farm for the farmer's year's labor, and lacking the amount indicated of paying 5 per cent interest on the farm capital.

Percentage return on capital.—The rate returned on the farm capital, after the value of the farmer's labor is deducted from the farm income. It represents what the capital earned after all expenses have been deducted, and the farmer has received a fair wage for his labor. When the percentage return on the capital is preceded by the "minus" sign, it means that the farmer did not realize even fair wages for his own labor and management, thus leaving nothing for the earnings on the farm capital.

Family living from the farm.—The value of food products set aside from the year's production, and the value of fuel and house rent furnished directly by the farm toward the family living of the operator. This form of earning has been considered in addition to receipts, farm income and labor income.

Animal unit.—In order to compare the different classes of animals, and to compute the total amount of livestock on these farms, all stock has been computed in terms of animal units. In this area, 1 horse, cow, or steer was counted

as 1 animal unit; 2 head of young stock (of the above kind) were counted as 1 animal; 3 brood sows, or seven 200-pound hogs (other hogs depending upon weight), 7 sheep, or 100 chickens, were each counted as 1 animal unit. The number of productive animal units includes all stock, except work stock.

Capital, receipts, expenses, farm income, etc., in case of farms operated by owners-additional, or by tenants, may refer to the farm, the operator's part, or the landlord's part.

In Table 1, the figures shown are for the average of the 100 farms, without regard to how the farms were owned or how the costs and returns were divided. Under the other headings, such as "Farm tenure," the figures refer to the farm as a whole, or to the operator's share, or to the landlord's share of the business, accordingly as the column heading reads.

ORGANIZATION AND MANAGEMENT OF 100 FARMS.

A summary of the business for the average of the 100 farms is given in Table 1. Data are given for each year—1910, and 1913 to 1919, inclusive—with the 8-year average. Averages of the first four years against the last four years are also given, a decided change to higher price levels having taken place by 1916 for most of the products sold from these farms.

TABLE 1.—*Summary of the business of 100 farms in Forest and Johnson Townships, Clinton County, Indiana, for eight years—1910, and 1913 to 1919, inclusive.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of 1910 and 1913-1915.	Average of 1916-1919.	Average of 1910 and 1913-1919.
Acres per farm.....	116	124	126	129	130	130	127	130	124	129	127
Wasteland.....	5	5	5	5	5	5	5	5	5	5	5
Woodland not pastured.....	2	1	1	2	2	2	1	1	1	1	1
Permanent pasture.....	9	11	12	11	12	12	11	11	11	11	11
Untillable.....	7	8	9	8	9	9	8	8	8	8	8
Tillable.....	2	3	3	3	3	3	3	3	3	3	3
Corn, total.....	37	38	42	43	45	50	42	45	40	46	43
For grain.....	37	37	42	43	44	49	41	43	39	45	42
For silage.....		1			1	1	1	2	1	1	1
Small grains, total.....	34	31	36	41	34	31	38	38	35	35	35
Oats.....	20	24	25	23	32	28	25	22	23	27	25
Wheat.....	14	7	11	17	2	2	9	14	12	7	9
Rye.....				1		1	4	2		1	1
Clover and timothy, total.....	29	37	29	26	31	27	27	29	30	29	30
Medium red clover and timothy, total.....	25	32	26	24	29	25	26	27	27	27	27
For pasture only.....	15	14	15	13	16	13	14	16	14	15	15
For hay only.....	8	6	7	6	9	9	9	10	7	9	8
For pasture and seed.....		1	1						1		
For hay and seed.....	2	11	3	5	4	3	3	1	5	3	4

TABLE 1.—Summary of the business of 100 farms in Forest and Johnson Townships, Clinton County, Indiana, for eight years—1910, and 1913 to 1919, inclusive—Continued.

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of 1910 and 1913-1915.	Average of 1916-1919.	Average of 1910 and 1913-1919.
Acres per farm—Con.											
Clover and timothy—Continued.											
Mammoth clover, total.....	4	5	3	2	2	2	1	2	4	2	3
For seed.....	4	5	3	2	2	2	1	1	4	2	3
For plowing under.....								1			
Fruit.....		1	1	1	1	1	1	1	1	1	1
Other crops.....						2	2			1	1
Yields per acre:											
Corn.....bushels.....	52	55	43	47	48	34	32	51	49	41	45
Oats.....do.....	47	36	38	53	37	36	52	42	44	42	43
Wheat.....do.....	20	20	19	19	6	15	27	20	20	17	18
Rye.....do.....	14	18	15	14	20	15	19	15	15	17	16
Hay.....tons.....	1.4	1.5	1.0	1.4	1.4	1.3	1.4	1.0	1.3	1.3	1.3
Livestock:											
Productive animal units.....	18.2	19.2	21.3	21.0	21.1	20.0	20.7	20.8	19.9	20.6	20.8
Cattle.....	6.2	7.2	6.5	7.3	7.7	7.6	8.3	7.7	6.8	7.8	7.3
Colts.....	.7	.8	.9	1.0	1.0	.9	.8	.7	.8	.8	.8
Sheep.....	.6	.2	.2	.2				.1	.3		.2
Hogs.....	9.4	9.7	12.4	11.2	11.1	10.3	10.2	11.0	10.7	10.7	10.7
Poultry.....	1.3	1.3	1.3	1.3	1.3	1.2	1.4	1.3	1.3	1.3	1.3
Receipts per animal unit.....	\$64	\$67	\$63	\$63	\$90	\$124	\$136	\$112	\$64	\$116	\$90
Number of work animals.....	4.8	4.6	4.8	4.9	4.8	4.8	4.5	4.7	4.8	4.7	4.7
Per cent of farms having tractors.....					2	7	8	10		7	3
Per cent of farms having silos.....	1	5	5	6	6	14	18	22	4	15	10
Labor, total months.	18.2	18.8	18.9	19.6	19.4	19.6	19.0	19.6	18.9	19.4	19.1
Regular hired months.....	3.5	2.5	3.0	3.3	3.3	3.6	3.0	3.2	3.1	3.3	3.2
Extra hired months.....	.8	1.1	1.0	1.3	1.2	1.1	1.0	1.2	1.0	1.1	1.0
Family months.....	1.9	3.2	2.9	3.0	2.9	993	3.0	3.2	2.8	3.0	2.9
Operator's..months.....	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Capital, total.....	\$19,055	\$24,936	\$25,724	\$26,436	\$26,598	\$27,822	\$31,135	\$32,615	\$24,038	\$29,543	\$26,791
Real estate.....	16,977	22,672	23,084	23,728	23,888	24,571	27,720	28,702	21,615	26,220	23,918
Land.....	15,434	20,903	21,246	21,826	21,842	22,420	24,975	25,573	19,852	23,702	21,777
Dwelling.....	804	855	872	889	946	993	1,275	1,470	855	1,171	1,013
Other buildings.....	739	914	966	1,013	1,100	1,158	1,470	1,659	908	1,347	1,128
Working capital.....	2,078	2,264	2,640	2,708	2,710	3,251	3,415	3,916	2,423	3,323	2,873
Livestock.....	1,355	1,482	1,709	1,677	1,787	2,084	2,294	2,576	1,556	2,185	1,871
Cattle.....	261	336	453	375	574	600	747	895	356	704	530
Colts.....	77	104	115	126	133	124	124	110	105	123	114
Sheep.....	19	5	6	7	3	6	8	9	10	6	8
Hogs.....	290	304	390	424	365	587	709	826	352	622	487
Poultry.....	46	49	50	51	51	76	78	98	49	76	63
Work animals.....	662	684	695	694	661	691	628	638	684	655	669
Machinery.....	286	376	397	406	400	433	459	484	366	444	405
Feed and supplies.....	313	308	426	517	418	625	549	750	391	586	489
Cash to run farm.....	124	98	108	108	105	106	113	106	110	108	108
Value of real estate per acre.....	147	182	183	183	184	188	218	220	174	203	188

TABLE 1.—Summary of the business of 100 farms in Forest and Johnson Townships, Clinton County, Indiana, for eight years—1910, and 1913 to 1919, inclusive—Continued.

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of 1910 and 1913-1915.	Average of 1916-1919.	Average of 1910 and 1913-1919.
Cost of improvements.	160	62	109	85	83	66	173	125	104	112	108
Cost of machinery bought.	53	63	61	45	78	98	63	99	56	84	70
Receipts, total.	1,911	2,265	2,190	2,408	3,015	3,439	4,431	4,557	2,177	3,837	3,007
Crops.	698	868	826	1,059	1,070	903	1,564	1,951	863	1,372	1,117
Corn.	194	341	325	352	600	283	340	834	303	514	408
Oats.	232	214	279	342	385	451	602	493	267	483	375
Wheat.	213	90	142	297	12	50	458	508	186	257	221
Rye.	4	4	1	1	2	17	66	23	1	27	14
Hay.	20	60	23	37	37	59	52	62	35	52	44
Fruit.	6	6	1	1	3	2	1	1	2	2	2
Clover seed.	34	142	43	21	21	31	26	21	60	25	42
Straw.	2	3	3	2	2	5	3	1	2	3	3
Tomatoes.	7	9	9	2	6	2	14	6	5	7	6
Potatoes.	1	1	1	2	2	2	2	2	1	2	2
Other crops.	2			2		1			1		
Livestock and products.	1,165	1,280	1,329	1,309	1,896	2,496	2,812	2,344	1,269	2,387	1,828
Dairy products.	46	89	91	99	104	127	162	181	81	143	112
Cattle.	151	220	203	217	324	370	555	281	198	382	290
Colts.	79	82	54	77	75	63	63	41	73	61	67
Sheep.	14	2	7	12	4	3	7	9	5	7	7
Wool.	5	1	2	2	2	2	3	3	2	2	2
Hogs.	772	784	869	801	1,250	1,798	1,859	1,663	807	1,643	1,225
Poultry.	36	41	41	34	69	44	74	55	38	60	49
Eggs.	55	61	62	67	68	87	94	113	61	91	76
Work animals.	7										
Increase in feed inventory.	18	70			4		1	227	7	34	21
Wood lot products.		3	1	4	5	3	4	3	2	4	3
Gravel.	4	5		4					3		2
Rent for buildings and pasture.	1	1	1	1	2	3	3		1	2	1
Outside work.	25	38	33	31	38	34	47	32	32	38	35
Expenses, total.	624	762	860	899	875	1,196	1,453	1,783	770	1,303	1,037
Labor—											
Hired.	133	128	144	152	155	176	212	279	139	205	172
Family.	48	85	70	78	79	89	120	121	70	102	86
Machinery.											
Repair.	10	10	10	10	10	12	22	37	10	20	15
Depreciation.	42	50	51	50	53	58	61	69	48	60	54
Dwelling—											
Repair.	7	7	7	8	8	8	11	15	8	10	9
Depreciation.	15	15	15	15	15	16	16	24	15	18	17
Other buildings—											
Repair.	9	10	11	11	11	11	12	19	10	13	12
Depreciation.	20	20	21	24	24	25	30	38	21	29	25
Fences, repair.	33	38	38	39	40	40	46	66	37	48	43
Feed bought—											
Hay, etc.	17	6	6	18	11	20	24	12	12	17	14
Corn, etc.	50	72	118	85	123	268	333	428	81	288	185
Seeds bought.	20	21	18	32	32	34	106	89	23	65	44
Fertilizer.	1	9	12	10	5	6	25	38	8	19	13
Machine work hired—											
Threshing.	32	25	29	38	27	27	56	54	31	41	36
Clover hulling.	3	24	7	4	5	5	5	3	9	5	7
Baling.	1	7	7	4	5	7	6	9	5	7	6
Shredding.	1	2	9	4	2	3	3	9	4	4	4
Silo filling.		1	1	1	1	1	5	4	1	3	2
Feed grinding.		2	2	2	2	1	4	6	2	3	2
Other.		2	1	2	1		2	1	1	1	1
Insurance.	7	7	7	8	8	7	9	11	7	9	8
Taxes.	140	157	160	179	185	199	205	231	150	205	182
Horseshoeing.	12	12	9	10	10	8	11	11	11	10	11
Breeding fees.	9	10	8	12	10	9	7	4	10	8	9
Veterinary fees.		19	17	25	19	16	27	43	15	26	20

TABLE 1.—Summary of the business of 100 farms in Forest and Johnson Townships, Clinton County, Indiana, for eight years—1910, and 1913 to 1919, inclusive—Continued.

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of 1910 and 1913-1915.	Average of 1916-1919.	Average of 1910 and 1913-1919.
Expense, total—Con.											
Twine.....	7	7	8	9	9	13	24	25	8	18	13
Fuel and oil.....	1	9	6	7	9	14	21	28	6	18	12
Decrease in feed inventory.....			32	26		93					
Decrease in value of work animals.....		4	32	31	11	27	45	66	15	37	26
Other.....	6	3	4	5	5	3	5	43	4	14	9
Farm income.....	1,287	1,503	1,830	1,509	2,140	2,243	2,978	2,774	1,407	2,534	1,970
Interest on capital at 5 per cent.....	953	1,247	1,286	1,322	1,330	1,391	1,557	1,631	1,202	1,477	1,339
Labor income.....	334	256	44	187	810	852	1,421	1,143	205	1,057	631
Operator's labor and management.....	312	325	332	338	349	402	527	657	327	484	405
Per cent return on capital.....	5.1	4.7	3.9	4.4	6.7	6.6	7.9	6.5	4.5	6.9	5.7
Family living from farm.....	\$279	\$265	\$262	\$266	\$314	\$409	\$495	\$490	\$268	\$426	\$347
Quantities of products sold and number of farms selling:											
Corn—											
Number of farms.....	57	65	59	66	73	54	53	69			
Bushels sold.....	45,500	59,292	48,230	60,059	64,516	27,386	23,902	59,734	53,270	43,884	48,577
Oats—											
Number of farms.....	75	76	80	76	91	68	85	78			
Bushels sold.....	71,743	62,993	74,898	98,484	97,610	74,980	97,902	70,496	77,030	85,247	81,138
Wheat—											
Number of farms.....	59	25	43	54	12	10	35	57			
Bushels sold.....	23,774	11,102	17,919	30,185	844	2,386	21,980	24,446	20,745	12,414	16,580
Rye—											
Number of farms.....	2	3	1	5	4	3	19	16			
Bushels sold.....	65	820	80	179	200	832	4,485	1,452	286	1,742	1,014
Hay—											
Number of farms.....	27	46	37	42	53	47	45	41			
Tons sold.....	233	698	189	405	411	424	376	316	381	382	382
Clover seed—											
Number of farms.....	24	67	18	25	22	23	20	7			
Bushels sold.....	438	1,942	506	216	228	194	124	96	776	160	468
Potatoes—											
Number of farms.....	5	4	4	5	3	5	13	7			
Bushels sold.....	158	145	142	287	90	152	174	66	183	120	152
Straw—											
Number of farms.....	7	14	6	5	18	11	10	2			
Tons sold.....	76	88	96	97	77	84	39	6	89	52	70
Sorghum sirup—											
Number of farms.....	1						1	1			
Gallons sold.....	400						7	15	100	6	53
Tomatoes—											
Number of farms.....		4	6	7	4	4	8	3			
Tons sold.....		72	154	24	68	20	75	32	62	49	56
Butter—											
Number of farms.....	48	37	29	26	24	19	12	3			
Pounds sold.....	11,203	4,947	5,346	4,969	4,202	3,443	1,623	365	6,616	2,408	4,512
Cream—											
Number of farms.....	33	63	63	71	71	74	84	86			
Pounds butter fat sold.....	11,058	27,436	32,543	34,899	29,749	26,889	33,644	32,978	26,484	30,815	28,650
Market milk—											
Number of farms.....								5			
Hundredweight sold.....								316		79	40
Wool—											
Number of farms.....	13	3	4	5	4	4	3	6			
Pounds sold.....	1,959	614	729	673	562	397	360	532	994	463	728
Eggs—											
Number of farms.....	98	99	97	96	97	97	97	98			
Dozens sold.....	32,422	35,322	36,298	38,075	34,008	30,114	30,325	29,832	35,529	31,070	33,300
Cows—											
Number of farms.....	35	34	55	49	50	51	54	44			
Head sold.....	53	73	89	92	96	90	107	85	77	94	86

TABLE 1.—Summary of the business of 100 farms in Forest and Johnson Townships, Clinton County, Indiana, for eight years—1910, and 1913 to 1919, inclusive—Continued.

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of 1910 and 1913-1915.	Average of 1916-1919.	Average of 1910 and 1913-1919.
Quantities of products sold and number of farms selling—Continued.											
Heifers—											
Number of farms..	20	16	18	23	27	30	23	26	24	54	52
Head sold.....	59	35	41	62	56	55	45	62	49	54	52
Calves—											
Number of farms..	40	58	61	71	71	58	67	70	156	209	182
Head sold.....	82	190	177	173	208	187	203	238	156	209	182
Bulls—											
Number of farms..	6	11	15	12	19	15	15	23	11	20	16
Head sold.....	5	11	16	13	20	16	17	27	11	20	16
Steers—											
Number of farms..	19	15	20	14	24	20	28	32	259	333	296
Head sold.....	381	241	275	138	330	296	311	396	259	333	296
Horses—											
Number of farms..	29	31	40	47	41	47	35	38	72	75	74
Head sold.....	58	71	71	90	68	78	67	86	72	75	74
Colts—											
Number of farms..	13	8	8	17	22	13	14	15	24	26	25
Head sold.....	18	34	17	29	37	18	24	24	24	26	25
Mules—											
Number of farms..	2	1	3	5	6	5	6	6	3	12	7
Head sold.....	5	2	5	13	14	8	11	3	12	7	7
Ewes—											
Number of farms..	7	4	5	3	2	3	2	2	104	20	62
Head sold.....	153	59	63	142	26	22	31	104	20	62	62
Lambs—											
Number of farms..	10	2	3	1	2	2	1	4	112	15	64
Head sold.....	322	38	83	6	12	17	5	26	112	15	64
Rams—											
Number of farms..	1	2	1	2	2	2	2	2	2	1	1
Head sold.....	1	2	3	2	2	2	2	2	2	1	1
Hogs—											
Number of farms..	91	92	96	96	96	94	96	97	10,368	11,170	10,769
Hundred weight sold.....	7,985	10,111	12,023	11,351	12,792	11,409	10,475	10,003	10,368	11,170	10,769
Chickens—											
Number of farms..	76	90	83	92	87	85	88	88	6,266	5,280	5,773
Head sold.....	6,005	6,542	6,349	6,169	5,728	5,356	5,328	4,709	6,266	5,280	5,773
Capons—											
Number of farms..	5	11	18	13	8	7	5	4	620	286	453
Head sold.....	543	622	791	524	332	358	248	208	620	286	453
Ducks—											
Number of farms..	1	2	3	2	5	2	3	2	18	50	34
Head sold.....	3	11	22	35	175	7	20	18	50	34	34
Turkeys—											
Number of farms..	2	3	2	4	1	1	1	1	39	4	21
Head sold.....	29	66	18	42	4	12	12	39	4	21	21
Geese—											
Number of farms..	2	4	3	4	6	5	5	5	50	57	54
Head sold.....	80	102	18	37	71	51	70	50	57	54	54
Prices received for products:											
Corn.....per bushel..	\$0.43	\$0.57	\$0.67	\$0.59	\$0.93	\$1.03	\$1.41	\$1.40	\$0.56	\$1.19	\$0.88
Oats.....do.....	.32	.34	.37	.35	.40	.61	.62	.70	.34	.58	.46
Wheat.....do.....	.93	.81	.80	.98	1.40	2.11	2.08	2.08	.88	1.92	1.40
Rye.....do.....	.63	.53	.60	.73	1.05	2.03	1.47	1.56	.62	1.53	1.08
Hay.....per ton.....	8.64	8.65	12.00	9.20	9.11	13.90	13.77	19.61	9.62	14.10	11.86
Clover seed.....per bushel..	7.83	7.29	8.54	9.58	9.42	15.75	20.66	22.29	8.31	17.03	12.67
Potatoes.....do.....	.81	.97	.50	.66	1.67	1.21	1.47	2.51	.74	1.72	1.23
Straw.....per ton.....	1.60	5.37	3.51	1.82	2.51	6.25	6.87	10.67	3.07	6.58	4.82
Sorghum sirup.....per gallon..	.50						2.00	2.00			
Tomatoes.....per ton.....		9.33	5.57	8.54	9.03	10.00	15.60	15.21		12.46	
Butter.....per pound..	.185	.236	.210	.216	.284	.369	.397	.460	.212	.378	.295
Cream, per pound butterfat	.225	.280	.244	.252	.310	.424	.460	.518	.250	.428	.339
Market milk.....per cwt.....								2.80			
Wool.....per pound..	.240	.190	.230	.300	.300	.511	.650	.511	.240	.493	.367

TABLE 1.—Summary of the business of 100 farms in Forest and Johnson Townships, Clinton County, Indiana, for eight years—1910, and 1913 to 1919, inclusive—Continued.

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of 1910 and 1918-1919.	Average of 1916-1919	Average of 1910 and 1918-1919
Prices received for products—Contd.											
Eggs.....per dozen..	.171	.174	.170	.175	.201	.289	.310	.378	.172	.294	.234
Cows.....per head..	44.49	57.10	53.79	58.49	61.68	76.83	92.37	96.84	53.47	81.93	67.70
Heifers.....do.....	33.93	47.69	39.34	45.63	57.64	53.85	79.47	74.80	41.65	66.44	54.04
Calves.....do.....	14.24	25.62	25.62	23.20	31.29	39.11	41.78	31.51	22.17	35.92	29.05
Bulls.....do.....	51.20	59.00	52.53	61.23	64.80	101.00	120.29	99.15	55.99	96.31	76.15
Steers.....do.....	59.40	91.27	87.62	77.66	94.14	122.26	156.81	136.37	78.99	127.40	103.19
Horses.....do.....	148.41	156.33	146.39	145.08	138.71	143.36	131.98	145.33	149.05	139.85	144.45
Colts.....do.....	101.41	103.65	95.12	125.69	108.54	94.50	126.75	106.25	106.47	109.01	107.74
Mules.....do.....	150.00	125.00	122.00	132.38	178.92	149.38	148.70	148.70	152.34	152.34	152.34
Ewes.....do.....	8.26	5.02	3.71	10.15	10.27	11.13	11.58	6.78	6.78	6.78	6.78
Lambs.....do.....	5.07	4.68	6.31	1.67	8.33	8.82	10.00	15.42	4.43	10.64	7.54
Rams.....do.....	8.00	10.00	8.33	16.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Hogs.....per cwt..	7.96	7.72	7.31	7.12	9.76	15.75	17.73	16.71	7.53	14.99	11.26
Chickens.....per head..	.56	.50	.49	.49	.65	.64	.95	.96	.61	.80	.66
Capons.....do.....	.64	1.07	1.02	1.10	1.67	1.75	2.10	2.62	.92	2.03	1.50
Ducks.....do.....	.67	.45	.45	.51	.98	.57	.79	.62	.62	.62	.62
Turkeys.....do.....	2.03	1.12	1.56	1.17	3.00	4.00	4.00	1.47	1.47	1.47	1.47
Geese.....do.....	.81	.77	1.06	1.30	1.52	1.39	2.74	1.74	1.74	1.74	1.74

NOTE.—Apparent discrepancies in the items "Increase in feed inventory," "decrease in work animals," "Receipts—Total," and "Expenses—Total" in the three columns of averages in this table are due to the fact that in some of the years there were decreases in feed inventory and increases in work animals; e. g., the increases in feed inventory in 1910 and 1913 equal \$88 and the decreases in 1914 and 1915 equal \$58. The net increase in 1910 and 1913-1915 equals \$30, or \$7 per year. The figures for "Increase in feed inventory," "Decrease in work animals," "Receipts—Total," and "Expenses—Total" in the three columns of averages were obtained as illustrated.

Apparent discrepancies in the last unit of some of the averages in the tables in this bulletin are due to the fact that all computations on which the averages are based were carried to at least two more decimal places than shown.

SIZE OF FARMS.

The farms of this area were smaller than in many other parts of the Corn Belt, especially in parts farther west, and most of the 100 farms were operated as 1 or 2 man farms. Only about 15 per cent were larger than 180 acres, while about 45 per cent were of 100 acres or less, and 40 per cent were from 101 to 180 acres. (See Table 2.)

TABLE 2.—Variations in size of farms.

Acres per farm	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
20 and under.....	3	—	—	2	1	1	1	2
21 to 60.....	17	16	14	12	10	13	11	11
61 to 100.....	28	30	32	29	34	30	33	27
101 to 140.....	28	27	23	28	25	20	24	25
141 to 180.....	11	10	15	13	11	19	15	17
181 to 220.....	4	7	6	6	8	6	5	7
221 to 260.....	5	4	5	3	4	4	5	6
261 to 300.....	1	1	—	—	1	1	1	1
301 to 340.....	1	3	1	3	1	3	2	2
341 to 380.....	1	1	3	2	3	2	2	1
381 to 420.....	1	—	—	1	—	—	—	—
421 to 460.....	—	1	—	—	1	1	1	1
461 to 500.....	—	—	—	—	—	—	—	—
501 to 540.....	—	—	1	1	—	—	—	—
Average acres per farm.....	116	124	126	129	130	130	127	130

NOTE.—Since this and all following tables, except Tables 3 and 31, refer to farms in Forest and Johnson Townships, Clinton County, Ind., the location of the farms is omitted from the headings of the tables.

For a comparison of the size of farms in this area in 1918 with that in two other Corn-Belt areas—Warren County, Iowa, and Tama County, Iowa—where similar investigations were made the same year, see Table 3.

TABLE 3.—*Comparison of size of farms in three areas of the Corn Belt in 1918.*

Acres per farm.	Per cent of farms in each size group		
	100 farms in Clinton County Ind.	183 farms in Warren County Iowa.	209 farms in Tama County Iowa.
20 and under.....	1		
21 to 60.....	11	1	
61 to 100.....	33	17	8
101 to 140.....	24	23	7
141 to 180.....	15	25	33
181 to 220.....	5	9	12
221 to 260.....	5	10	14
261 to 300.....	1	3	6
301 to 340.....	2	4	10
341 to 380.....	2	3	2
381 to 420.....		1	3
421 to 460.....	1	1	1
461 to 500.....		1	1
501 to 540.....		1	1
541 to 580.....		1	1
581 to 620.....			1
Average acres per farm.....	127	177	219

The increase in average size of the 100 farms from 116 acres in 1910 to 130 acres in 1916, 1917, and 1919, is in accord with the 1910 and 1920 data of the Bureau of the Census, which show increases in average size of farms from 99 to 103 acres for the State of Indiana, and from 93 to 104 acres for Clinton County. The average size of farms in the county, in 1900, was 84 acres.

Changes in the size of many of the farms in this area occurred during the period of this investigation.

There were more than 150 different farms and 150 different operators included in this investigation.

Of the 100 farms selected from the total number each year 46 farms were the same farms all eight years, 31 seven of the years, 15 six of the years, and 8 for fewer than six years.

Of the 100 operators 47 were the same all eight of the years, 26 seven of the years, 14 six of the years, and 13 for fewer than six years.

Of the 100 farms 42 were the same farms operated by the same men all eight of the years, 26 seven of the years, 15 six of the years, and 17 for fewer than six years.

Of the 46 farms, which were included every year, 14 were the same size throughout the period, 6 were the same size every year but one, 4 every year but two, 4 every year but three, 5 of the farms were the same size only four of the eight years, 5 three of the eight years, 6 two of the eight years, 2 farms were different sizes each year; 16 of these farms were the same size in 1919 as in 1910, while 21 were larger in 1919 than they were in 1910, and 9 were smaller in 1919 than in 1910.

Of the 47 men operating every year, 14 were operating the same sized farms in 1919 as in 1910, 24 were operating larger farms, and 9 were operating smaller farms.

Of the 42 men operating the same farm every year, 14 were operating the same sized farms in 1919 as in 1910, while 20 were operating larger farms in 1919 than in 1910, and 8 were operating smaller farms in 1919 than in 1910.

These figures serve to illustrate something of the changes occurring in the sizes of the different farms of this area over the period of this investigation, and how unstable even the number of acres operated as a farm unit may be from year to year.

USES OF THE LAND.

From the standpoint of crops, these 100 farms were organized, in the main, for the production of corn, mostly for grain, a little for silage; small grains, oats, wheat, and rye; and clover and timothy, for hay, pasture, and clover seed. (See Fig. 1.)

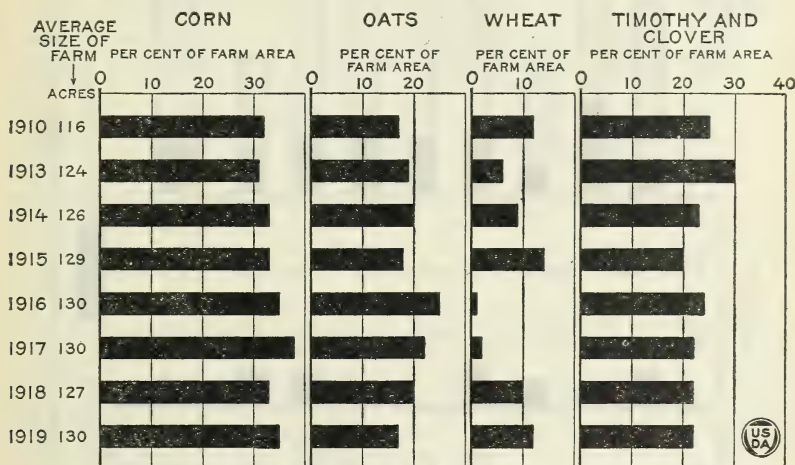


FIG. 1.—Some increase is shown in the average size of the 100 farms. The 1910 and 1920 census data show increases in average size of farms from 99 to 103 acres for the State of Indiana, and from 93 to 104 acres for Clinton County. The percentage of land in wheat varied more than other crops from year to year. There were tendencies toward an increasing percentage of the land area in corn, and a decreasing percentage in clover and timothy the later years of the investigation. These tendencies were probably more of a temporary than permanent nature, from agronomic and economic causes. In 1919, the last year covered by this study, the percentage of the total farm land in each crop closely approximated the percentages in 1910.

Corn was the outstanding crop of the area in acreage and value. It was not only the main feed crop, but 26 per cent of all the corn produced during the eight years was sold as a cash crop; and this represented 36 per cent of the crop receipts, and 14 per cent of the total farm receipts. Corn as a cash crop was second only to hogs as a source of receipts for the 100 farms. Seventy-four per cent of all the corn was used on the farms where it was produced.

The production of the small grains—oats, wheat, and rye—fitted well into the crop organization just outlined. The labor requirements for these crops conflicted but little with those for corn, and required but a few days' additional labor at harvest time; the crops served as excellent nurse crops for clover and timothy seedings, and as cash crops they added materially to the total farm receipts, representing 55 per cent of the crop receipts and 20 per cent of the total farm receipts. Seventy-six per cent of the oat production, 82 per cent of the wheat production, and 51 per cent of the rye production were sold as cash crops. (See Fig. 2.)

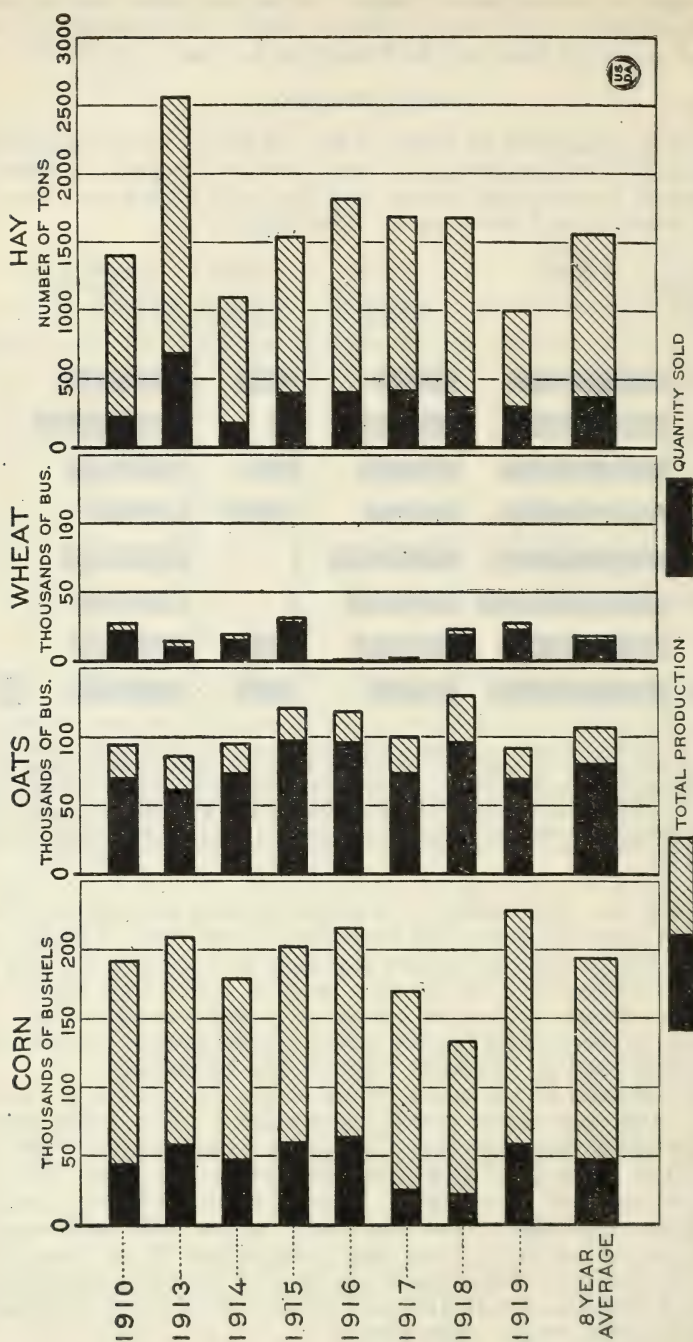


Fig. 2.—The greater parts of the production of wheat and oats on these 100 farms were sold as cash crops, while the greater parts of the production of corn and hay were fed on the farms producing them. The quantities of each crop sold from year to year varied largely with the quantities produced.

Timothy was often seeded with clover, mainly as an alternative for hay and pasture, and to save breaking the rotation, in case of clover failures.

Clover was an important supplementary crop with corn, for resting the land from corn, adding nitrogen to the soil, furnishing protein for the livestock, and sometimes producing a crop of seed. The last, however, was somewhat uncertain; only one of the eight years was a really good clover-seed year. Upon the acreage basis, only 17 per cent of the clover and timothy production was sold as cash crops, which contributed but 3 per cent of the total farm receipts.

Such organization of the land for the production of crops presupposes a 3-year 3-crop rotation of corn, small grains, and clover and timothy, which was the dominant rotation of the area. The 3-year rotation was sometimes lengthened into a 4-year rotation by growing corn two successive years, or by growing small grains two successive years, usually wheat following oats.

Farms of 60 acres or less deviated more from this standard 3-year 3-crop rotation than the larger farms. In efforts to grow more corn without renting additional land, the following successions of crops were employed on some of the smaller farms: Corn, corn, small grains, clover and timothy; corn, corn, clover and timothy; corn, clover and timothy. In these instances, about 50 per cent, or even more, of the entire farm was in corn.

On these small farms, instances were found where almost the entire farm was put to corn occasional years, followed for a few years by a dividing up of the crops among corn, small grains, clover and timothy, or between corn, and clover and timothy. These are the instances where the percentage of land in corn reached 70 or more of the total land in the farm. (See Table 5.)

Some of the smaller farms also produced canning tomatoes from small acreages, another effort at intensifying their crop production. On a few small farms, 2 or 3 acres of tomatoes sometimes returned more than 10 per cent, and occasionally more than 20 per cent, of the total farm receipts. These farms were too small to lend themselves to the regular cropping system prevailing on the larger farms, and yet give sufficient returns above what the farms furnished directly in food, fuel, and use of house to support adequately the families living on them.

The proportion of the total land area that was in crops remained practically constant throughout the period, although that devoted to the different crops varied somewhat from year to year. Corn, the small grains, and clover and timothy, in the order named, were the crops occupying largest acreages. During this period there was a tendency to an increased acreage in corn, while the acreage in the small grains, and that in clover and timothy, remained about the same. The percentage of the total land area in corn was increased, while that in the small grains and clover and timothy was decreased. See Table 1 for yearly acreage variations and Table 4 and Figure 1 for yearly percentage variations of these crops.

TABLE 4.—*Per cent of farm area in corn, small grains, and clover and timothy.*

	Percentage in—									Average per- centage of—		
	1910	1913	1914	1915	1916	1917	1918	1919	1910 and 1913- 1915	1916- 1919	1910 and 1913- 1919	
Corn:												
Total.....	31.6	30.3	33.7	33.3	34.5	39.1	33.5	34.3	32.2	35.3	33.8	
For grain.....	31.5	29.9	33.1	33.0	34.2	37.8	32.1	32.8	31.9	34.2	33.1	
Hogged off.....		(.1)	(.4)	(.2)	(.3)	(1.2)	(1.6)	(1.6)	(.2)	(1.2)	(.7)	
For silage.....	.1	.3	.4	.3	.3	.9	1.2	1.5	.3	1.0	.6	
For fodder.....			.2			.4	.2			.1	.1	
Small grains:												
Total.....	29.5	25.4	29.1	31.8	26.8	25.1	30.4	29.6	29.0	28.0	28.5	
Oats.....	17.2	19.2	19.9	17.6	25.0	22.8	20.0	17.3	18.5	21.3	19.9	
Wheat.....	12.2	5.7	9.0	13.5	1.5	1.6	7.1	10.8	10.1	5.2	7.7	
Rye.....	.1	.5	.2	.7	.3	.7	3.3	1.5	.4	1.5	.9	
Clover and timothy:												
Total.....	25.2	29.5	22.7	20.0	23.7	20.9	21.7	22.2	24.3	22.1	23.2	
Medium red clover and timo- thy—												
Total.....	21.6	25.5	20.6	18.5	22.1	19.5	20.6	20.4	21.5	20.6	21.1	
For pasture only.....	12.7	10.9	11.7	10.2	12.3	10.3	11.2	12.1	11.4	11.5	11.4	
For hay only.....	7.1	5.1	6.0	4.4	6.8	7.2	7.3	7.5	5.6	7.2	6.4	
For pasture and seed.....		.7	.5	.2	.2	.1	.1		.4	.1	.3	
For hay and seed.....	1.8	8.7	2.3	3.7	2.7	1.9	2.0	.8	4.1	1.8	3.0	
For hay and pasture.....		.1	.1		.1							
Mammoth clover—												
Total.....	3.6	4.0	2.1	1.5	1.6	1.4	1.1	1.8	2.8	1.5	2.1	
For seed.....	3.6	4.0	.1	1.5	1.4	1.4	1.1	1.4	2.8	1.3	2.0	
For plowing under.....								.4		.1	.1	
Alsike clover for seed.....					.2					.1		
Total of corn, small grains, and clover and timothy.....	86.3	85.2	85.5	85.1	85.0	85.1	85.6	86.1	85.5	85.4	85.5	

The proportion of the land put to corn varied with different farms, and often the same farm varied in different years. (See Table 5.) Less than 25 per cent of the land was in corn on a few farms, and more than 45 per cent on a few others. The greater number of all the farms had from 25 to 45 per cent of the land in corn, the proportion varying with conditions existing on each farm. Some farms were of such size that, with the labor and equipment available, a rather high percentage could well be put in corn; while with others there would have been considerable extra expense for labor or equipment if such a large percentage of the land had been put in corn. Ordinarily, one man with a 2-horse (1-row) cultivator cared for from 20 to 30 acres of corn; and one man with a 3-horse (2-row) cultivator cared for from 30 to 50 acres.

TABLE 5.—*Variations in per cent of land in corn.*

Per cent of land in corn.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
5 to 14.....	2	3						
15 to 24.....	13	23	8	11	8	6	13	11
25 to 34.....	47	40	51	45	39	30	44	35
35 to 44.....	24	19	27	33	38	35	28	38
45 to 54.....	10	7	7	4	9	21	12	9
55 to 64.....	2	3	3	4	4	4	2	5
65 to 74.....	1	1	2	2	1	3	1	2
75 to 84.....		1	1	1	1	1		
85 to 94.....	1	3	1					

The bulk of the corn crop was harvested as grain, although the number of farms with silos increased from 1 in 1910 to 22 in 1919. Even with 22 silos, less than 5 per cent of the total corn acreage of the 100 farms was put into silos. The practice of "hogging off" corn gained in favor on a number of farms in the area. In 1910, not 1 of the 100 farms reported hogging off any corn. In 1913, 1 farm reported hogging off about 10 per cent of the corn acreage; in 1919, 22 of the 100 farms reported hogging off some of the corn, varying on different farms from about 10 to almost 50 per cent of the corn acreages.

A number of the farms, varying from 27 to 45 per cent for different years, fed all the corn they produced. (See Table 6.) Others sold part of their corn, varying from only a small percentage to almost the total production. The relatively large number in the 50 to 59 per cent group was due to farms operated by tenants, where the landlord sold or removed his half share of the crop from the farm.

TABLE 6.—*Variations in per cent of corn sold as cash crop.*

Per cent of corn sold.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
None.....	43	35	41	33	27	44	45	31
1 to 9.....	3	5	5	7	9	7	8	7
10 to 19.....	6	5	6	6	15	15	6	9
20 to 29.....	11	13	8	9	5	7	10	14
30 to 39.....	6	3	10	5	7	9	6	5
40 to 49.....	7	7	2	7	6	4	1	5
50 to 59.....	16	12	16	15	13	12	17	21
60 to 69.....	4	7	5	8	10	2	5	4
70 to 79.....	1	7	5	5	3	—	2	3
80 to 89.....	3	5	1	3	4	—	—	1
90 to 100.....	—	1	1	2	1	—	—	—

Oats and wheat were the leading competitors for the use of the land in the small-grain part of the rotation, with oats occupying more of the land than wheat each year. (See Tables 1, and 7 to 10, inclusive.) Over this period, the average per-acre value of the production of oats was 24 per cent less than that of wheat. (See Table 11.)

TABLE 7.—*Variations in per cent of land in small grains.*

Per cent of land in small grains.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
None.....	8	8	7	6	5	8	6	4
1 to 4.....	—	1	—	—	1	—	—	—
5 to 14.....	5	7	6	3	9	8	5	6
15 to 24.....	20	26	20	19	34	38	22	25
25 to 34.....	43	41	38	40	32	34	35	37
35 to 44.....	14	15	20	24	17	12	23	24
45 to 54.....	7	2	9	8	2	—	6	4
55 to 64.....	3	—	—	—	—	—	3	—

TABLE 8.—*Variations in per cent of land in oats.*

Per cent of land in oats.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
None.....	21	18	16	21	5	12	10	15
1 to 4.....	5	2	1	2	1		2	
5 to 14.....	20	13	17	20	13	6	22	32
15 to 24.....	22	27	25	26	33	41	32	27
25 to 34.....	26	34	31	23	33	32	21	21
35 to 44.....	5	5	6	5	13	9	9	5
45 to 54.....	1						2	
55 to 64.....							2	

TABLE 9.—*Variations in per cent of land in wheat.*

Per cent of land in wheat.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
None.....	40	75	57	46	85	88	65	39
1 to 4.....	2				5	2	16	2
5 to 14.....	18	10	22	11	9	9	12	25
15 to 24.....	24	8	14	26	1	1	7	23
25 to 34.....	14	5	4	14				6
35 to 44.....	2	2	3	3				

TABLE 10.—*Variations in per cent of land in rye.*

Per cent of land in rye.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
None.....	98	97	97	89	95	93	74	79
1 to 4.....		1	1	3	2	2	2	6
5 to 14.....	2	1	2	8	3	4	18	14
15 to 24.....		1					4	1
25 to 34.....							2	
35 to 44.....						1		

TABLE 11.—*Comparative values of the production per acre of oats, wheat, and rye.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of—		
									1910, 1913– 1915.	1916– 1919.	1910, 1913– 1919.
Oats.....	\$15.04	\$12.24	\$14.06	\$18.55	\$14.80	\$21.96	\$32.24	\$29.40	\$14.97	\$24.60	\$19.79
Wheat.....	18.60	16.20	15.20	18.62	8.40	31.65	56.16	41.60	17.16	34.45	25.80
Rye.....	8.82	9.54	9.00	10.22	21.00	30.45	27.93	23.40	9.40	25.70	17.54

On the other hand, oats were a more certain crop, year after year, than wheat. Harvesting oats conflicted less with labor on corn than harvesting wheat. Oats were sown with an end-gate seeder in the spring before corn planting; while wheat was sown in the fall, when following corn with a 2 or 3 horse drill if the corn had been cut off, and with a 1-horse drill between the rows if the corn were to be husked from the standing stalk.

The agreeableness of the work of seeding oats, as above described, in the spring before hot weather, as compared with that of seeding wheat between the corn rows in hot weather, was also a factor in favor of oats.

The comparative conditions in which the land was left, for the clover and timothy following, was also in favor of oats.

These are some of the considerations which were taken into account by the farmers in choosing between oats and wheat.

Wheat was the crop with greatest yearly variations, not only in acreage, but in yield per acre, and in number of farms growing the crop. The yearly variation in acreage was from 22 to 189 per cent of the 8-year average; in yields per acre from 33 to 150 per cent; and in number of farms growing the crop from 32 to 160 per cent.

In 1916, when the wheat crop failed on many farms, mainly on account of winter killing, considerable acreages which had been sown to wheat were sown to oats, or planted to corn, thereby making the acreage in oats in 1916 the largest, and that in corn one of the largest, of any of the years included in this study. The yield of wheat which was harvested this year was only 6 bushels per acre. After such experiences, wheat was sown on only 12 farms for the 1917 harvest. Following a yield of 15 bushels per acre in 1917, wheat was sown on 35 farms for the 1918 harvest, when the yield per acre was 27 bushels—the highest of any of the 8 years. For the 1919 harvest, wheat was sown on 61 farms—about the same number of farms, the same acreage, and with the same yield per acre as in 1910.

Along with an increase of 5 acres per farm in total area, increases of 6 acres of corn and 4 acres of oats, and a decrease of 5 acres of wheat—partly offset by 1 acre of rye—are shown by comparisons of the averages of the two 4-year periods. Whether these changes are for short-time periods, or whether they indicate long-time trends, is speculative, even though the data for 1919 indicate a return to the 1910 acreage for every crop except corn.

Following the reverses with wheat, a number of farmers grew rye, which until 1916 had been grown on but few farms, on account of its relatively low value. In 1916, the per-acre value of rye was two and a half times that of wheat, and one and a half that of oats. In 1917, the per-acre value of rye about equaled that of wheat. In 1918, when the largest acreage was seeded to it, rye was grown on 26 farms, and it occupied about half as much of the land as wheat; but the yield was only 19 bushels per acre as against 27 bushels for wheat, and the per-acre value was only half that of wheat. The number of farms on which rye was grown in 1919 dropped to 21, and the land in rye was about one-seventh that in wheat. The per-acre value of rye production over the 8-year period was less than that of wheat, but rye gave a more nearly uniform yearly yield per acre, varying from an average of 14 bushels to an average of 20 bushels per acre.

From 15 to 35 per cent of the land area of most of the farms was in clover and timothy, the complement of corn and small grains in the 3-crop rotation (see Table 12). Aside from the rotation and fertility standpoints, the varied uses of the clover crop—for pasture, hay, and seed—made it desirable for this area.

TABLE 12.—*Variations in per cent of land in clover and timothy.*

Percent of land in clover and timothy.	Number of farms in—						
	1910	1913	1914	1915	1916	1917	1918
None.....	4	3	6	3	2	2	5
1 to 4.....	1	3	1	1	4	1	1
5 to 14.....	12	3	15	20	12	18	15
15 to 24.....	34	31	34	43	37	46	45
25 to 34.....	35	38	33	27	36	27	26
35 to 44.....	10	14	9	5	6	5	8
45 to 54.....	4	7	1	-----	1	1	-----
55 to 64.....	-----	1	1	-----	1	1	1
65 to 74.....	-----	-----	-----	1	1	-----	-----

The proportionate amounts of corn, small grains, and clover and timothy to be grown on the farms in this locality will vary with the size of the farm, the amount of labor at hand, the equipment in use, and the degree to which the cropping system has been standardized. These amounts, even on many of the well-organized farms, necessarily vary from year to year, but the farms with least yearly variations in the corn acreage made more money than those with greatest variations. It was a more standardized cropping system, worked out for the individual farm from several years' experience.

In general, most farms should have all the acreage in corn that can be well cared for and still be consistent with a good crop rotation system and the economic use of labor and equipment.

The variation in the yields of corn, oats, and wheat on different farms is shown in Tables 13, 14, and 15. The yields of these crops in this area in 1917 were greatly reduced by a severe hailstorm which occurred about wheat harvest time. The path of the storm was a mile or more wide diagonally across the area, and half of the 100 farms lay within the storm area. Table 16 tells much of the story of the effects of the storm upon the yields of corn, oats, and wheat. The average yields per acre for the 50 farms outside the hailstorm area, as against the 50 farms within the hail area, were: Corn, 45 bushels, and 25 bushels; oats, 47 bushels, and 17 bushels; wheat, 22 bushels, and 14 bushels. Again, 1918, there was a poor crop of corn in this whole area, as was general throughout the Corn Belt. In view of these facts, the lower average crop yields of corn, oats, and wheat, for the latter 4-year period, should not be interpreted as meaning that crop yields are decreasing.

TABLE 13.—*Variations in yield of corn per acre.*

Bushels per acre.	Number of farms in—						
	1910	1913	1914	1915	1916	1917	1918
3 to 7.....	-----	-----	-----	-----	-----	4	2
8 to 12.....	-----	-----	-----	-----	-----	7	3
13 to 17.....	-----	-----	-----	-----	-----	8	3
18 to 22.....	-----	-----	2	-----	-----	9	12
23 to 27.....	-----	2	2	-----	1	10	15
28 to 32.....	2	3	8	3	3	12	19
33 to 37.....	1	1	12	2	3	5	8
38 to 42.....	16	4	21	21	18	14	14
43 to 47.....	11	12	20	17	22	8	15
48 to 52.....	36	34	25	41	31	17	7
53 to 57.....	8	13	4	9	7	2	-----
58 to 62.....	20	19	3	5	9	3	1
63 to 67.....	5	9	2	1	4	1	1
68 to 72.....	1	3	-----	1	1	-----	-----
73 to 77.....	-----	2	1	-----	1	-----	-----

TABLE 14.—Variations in yield of oats per acre.

Bushels per acre.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
0.....						15		
2 and less.....						3		
3 to 7.....						3		
8 to 12.....						3		1
13 to 17.....		2	1			3		
18 to 22.....		3	4			3		
23 to 27.....	1	5	6		3	3		2
28 to 32.....	4	20	11	1	21	2		7
33 to 37.....	5	11	16	3	22	6		13
38 to 42.....	19	23	27	4	23	11	17	27
43 to 47.....	10	6	9	7	14	13	8	13
48 to 52.....	24	8	9	24	8	17	25	9
53 to 57.....	3	2	1	18	1	7	17	7
58 to 62.....	11	2		8		2	19	3
63 to 67.....	1			5			3	
68 to 72.....	1			5				
73 to 77.....				4			1	

TABLE 15.—Variations in yield of wheat per acre.

Bushels per acre.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
2 and less.....					2			1
3 to 7.....				4	6	2		1
8 to 12.....		2	5	6	6	2		5
13 to 17.....	4	9	13	18	1	2	3	16
18 to 22.....	36	7	10	16		2	10	18
23 to 27.....	7	7	10	5		4	7	16
28 to 32.....	1		5	3			9	4
33 to 37.....				2			3	
38 to 42.....							2	
43 to 47.....							1	

TABLE 16.—Variations in yield of crops per acre on the farms in the hail area, and on the farms outside the hail area, in 1917.

Bushels per acre.	Number of farms.					
	Corn.		Oats.		Wheat.	
	Farms in the hail area (50).	Farms outside the hail area (50).	Farms in the hail area (43).	Farms outside the hail area (45).	Farms in the hail area (8).	Farms outside the hail area (4)
0.....			15			
2 and less.....			3		2	
3 to 7.....	4		3			
8 to 12.....	7		3		2	
13 to 17.....	8		3		1	1
18 to 22.....	9		3		1	
23 to 27.....	5	5	3		2	2
28 to 32.....	10	2	2			
33 to 37.....	2	3	3	3		
38 to 42.....	5	9	5	6		
43 to 47.....		8	2	11		
48 to 52.....		17	1	16		
53 to 57.....		2		7		
58 to 62.....		3		2		
63 to 67.....		1				

LIVESTOCK PRODUCTION.

The greater part of the corn and clover and timothy produced in the area was marketed as livestock and livestock products. In addition to almost 5 head of work animals, the 100 farms averaged almost 4 cows, 7 sows, and 100 chickens. Something of the variations in numbers of each on the different farms is shown in Table 17.

TABLE 17.—*Variations in number of work animals, cows, sows, ewes, and chickens per farm.*

Number of animals per farm.	Number of farms.									
	Work animals.		Cows.		Sows.		Ewes.		Chickens.	
	1913	1918	1913	1918	1913	1918	1913	1918	1913	1918
None.....			2	1	2	3	95	97		1
1 to 4.....	57	54	76	70	36	39				
5 to 9.....	38	45	20	28	42	38	1	2		
10 to 14.....	4	1	2	1	16	11	1			
15 to 19.....	1				3	8	1			
20 to 24.....					1	1	1	1	11	18
25 to 29.....										
30 to 34.....							1			
35 to 39.....										
40 to 44.....										
45 to 49.....										
50 to 99.....									41	45
100 to 149.....									32	22
150 to 199.....									11	10
200 to 299.....									4	4
300 and over.....									1	

The total amount of productive livestock—that is, those other than work animals—is better expressed as productive animal units, which averaged 19.9 per farm for the first 4 years, 20.6 for the last 4 years, and 20.3 for the 8 years. This was an average of 16 animal units for each 100 acres of land for the 8 years and for each of the 4-year periods.

If the farms were more heavily stocked one year than another, it was in 1914, when there were 16.9 productive animal units per 100 acres, as against 16.3 the next higher years, 15.5 the lowest year, and an 8-year average of 16. Following a year of large corn production, with a comparatively large surplus carried over into the next year, a larger number of hogs were sold in 1914, in spite of a lower production of corn, than in any of the years except 1917 and 1918.

The variation in amounts of productive livestock on the different farms is indicated in Table 18; and variation in the intensity of stocking of the different farms, expressed in number of productive animal units per 100 acres of land, in Table 19.

TABLE 18.—*Variations in number of productive animal units per farm.*

Productive animal units per farm.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
2.5 and less.....	2	3	1	1	2	2		
2.6 to 7.5.....	22	17	13	17	11	9	14	14
7.6 to 12.5.....	19	19	20	16	21	26	19	20
12.6 to 17.5.....	21	22	15	18	18	15	22	19
17.6 to 22.5.....	12	13	15	13	12	16	12	13
22.6 to 27.5.....	5	4	9	10	13	8	9	9
27.6 to 32.5.....	6	4	9	7	5	8	4	7
32.6 to 37.5.....	6	7	7	8	5	5	7	4
37.6 to 42.5.....	2	4	2	2	6	5	6	6
42.6 to 47.5.....	1	3	1	1	1		2	1
47.6 to 52.5.....		1	2	2	1	2	1	3
52.6 to 57.5.....	2	1	3	2	1	1	2	1
57.6 to 62.5.....	1		1	1		2		2
62.6 to 67.5.....		1	1	1	1			1
67.6 to 72.5.....								
72.6 to 77.5.....			1					
77.6 to 82.5.....						1	1	
82.6 to 87.5.....					2			
87.6 to 92.5.....							1	
92.6 to 97.5.....								
97.6 to 102.5.....	1							
102.6 to 107.5.....				1				
107.6 to 112.5.....								
112.6 to 117.5.....								
117.6 to 122.5.....		1						
Average per farm.....	18.2	19.2	21.3	21.0	21.1	20.0	20.7	20.8

TABLE 19.—*Variations in number of productive animal units per 100 acres of land.*

Productive animal units.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
Less than 5.....	6	5	2	1	3	2	4	3
5 to 9.9.....	20	23	14	17	13	13	11	17
10 to 14.9.....	30	24	26	30	31	34	33	21
15 to 19.9.....	17	19	24	21	20	28	22	28
20 to 24.9.....	10	17	18	12	17	15	17	21
25 to 29.9.....	11	8	10	13	10	2	7	4
30 to 34.9.....	5	3	4	5	5	3	5	3
35 to 39.9.....	1	1	1	1	1	2	1	1
40 to 44.9.....			1			1		2

The variations within certain limits in Table 18 were due to size of farm, but there were also variations on farms of similar size. An appreciable number of the farms carried less than 10 productive animal units per 100 acres of land, while there was also an appreciable number carrying more than 25 per 100 acres. The former group of farms was comparatively lightly stocked and the latter rather heavily stocked.

Practically all the farms within the group of lightly stocked farms either had poor yields of corn or sold 50 per cent or more of the corn production, while practically all those within the group of heavily stocked farms either had above-average yields of corn or bought considerable feed. Corn was seldom sold from any of the latter group of farms.

More than half of all the farms, and some years as many as 70 per cent of all, had from 10 to 25 productive animal units per 100 acres of land. These variations reflected the percentages of the land

in corn, the yield of corn per acre, the amount of corn sold, and the amount of feed bought.

Hogs represented more than half of the productive livestock on the 100 farms and cattle more than a third.

Most of the 100 farms kept from 1 to 4 cows (Table 17), either of dairy or dual-purpose breeds, and primarily for supplying dairy products for family use. After the household needs had been supplied small amounts of dairy products were sold, averaging \$58 per farm in 1913 and \$114 in 1918. With few exceptions, the farms with 5 to 9 cows sold considerable quantities of dairy products, averaging \$171 per farm in 1913 and \$296 in 1918. The two farms with more than 10 cows in 1913 averaged \$562 sales of dairy products, while only a very small quantity of dairy products was sold from the farm that in 1918 had more than 10 cows.

About half of the calf production on these farms was sold before the calves were a year old, and the other calves were kept two or three years before selling.

Beef-cattle feeding was not carried on extensively in this area. Only 17 of the 100 farms fed as many as 10 head of cattle in a season. Four of these farms fed beef cattle during 6 of the 8 years and two during 4 of the 8 years, and five additional men fed beef cattle for only 1 and 2 of the 8 years. Table 20 shows the number of farms feeding 10 or more head each year.

TABLE 20.—*Number of farms out of 100 with 10 or more head of feeding cattle.*

Number of feeding cattle per farm.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
10 to 19.....	1	2	3	1	—	1	1	2
20 to 29.....	6	2	1	—	2	—	2	—
30 to 39.....	—	1	1	—	—	2	1	1
40 to 49.....	—	4	—	2	—	1	—	1
50 to 59.....	—	—	—	—	1	1	3	—
60 to 69.....	1	—	—	1	—	—	—	—
70 to 79.....	—	1	—	—	—	1	—	—
80 to 89.....	—	—	—	—	1	—	—	—
90 to 99.....	—	—	—	—	—	—	—	—
100 and over.....	—	—	—	1	—	—	—	1
Total.....	8	10	5	5	4	6	7	5

The preference for the production of hogs over that of cattle in this area was partly due to the size of the farms, the relative amounts of capital involved, and the prices of cattle and hogs. Forty-five per cent of the farms were under 100 acres in size in 1918 and 39 per cent from 101 to 180 acres, leaving only 16 per cent larger than 180 acres. Practically all of these farms were too small to maintain breeding herds of sufficient size to give satisfactory returns from beef production on land worth almost \$200 per acre.

The value of the output from a given amount of capital in brood sows was much greater than from that in breeding cows, or from that in the purchase of feeding cattle. The amount of capital involved was therefore much less in the production of hogs than of beef cattle.

The prices received for the corn and clover production were higher when marketed through hogs than cattle. The average price paid to producers of hogs in the United States for these eight years was

\$10.47 per 100 pounds; that for cattle, \$7.09. The average receipts per animal unit from hogs for these 100 farms was \$114, and from cattle, \$55.

Most of the 100 farms carried less than 10 animal units in the form of cattle per 100 acres, and these were almost equally divided between those with less than 5 and those with from 5 to 10. (See Table 21.) Farms with more than 10 animal units in cattle per 100 acres were very small farms with 3 to 5 animal units in cattle farms, that were giving considerable attention to dairying, or farms that were feeding beef cattle.

TABLE 21.—*Variations in number of productive animal units in the form of cattle per 100 acres.*

Productive animal units in cattle.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
Less than 5	57	58	49	52	50	38	36	43
5 to 9.9	33	30	45	37	39	51	51	45
10 to 14.9	6	10	6	9	6	7	8	10
15 to 19.9	2	1	-----	2	4	2	5	2
20 to 24.9	2	1	-----	-----	1	2	-----	-----

While most of the 100 farms had less than 10 animal units in the form of hogs per 100 acres, a considerable number of them, varying from 28 to 38 per cent of all the farms for different years, had more than 10 animal units in hogs per 100 acres. (See Table 22.)

TABLE 22.—*Variations in number of productive animal units in hogs per 100 acres.*

Productive animal units in hogs.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
Less than 5	32	38	28	25	25	28	27	29
5 to 9.9	37	30	36	37	37	42	45	34
10 to 14.9	20	19	16	24	26	24	17	29
15 to 19.9	7	8	15	7	10	4	9	4
20 to 24.9	3	5	5	6	1	-----	2	3
25 to 29.9	1	-----	-----	1	-----	2	-----	-----
30 to 34.9	-----	-----	-----	-----	1	-----	-----	1

The ratio of the number of animal units in the form of cattle to that in the form of hogs for all farms throughout the eight years was 1 to 1.5, with yearly variations of from 1:1.2 to 1:1.9. The variations of individual farms were much greater than these, but most farms fell within a range of 1 animal unit in cattle to 0.1 to 1.9 animal units in hogs, and more of the more successful farms within a range of 1 animal unit in cattle to 2 or more animal units in hogs. (See Table 23.)

The more successful farms referred to here are those with farm incomes above the regression line for size of farm and farm income. (See fig. 3, p. 28.)

TABLE 23.—*Ratio of number of animal units in cattle to number of animal units in hogs per farm.*

Ratio of number of animal units in cattle to number of animal units in hogs.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
1:0	1	1	2	1	3	3	—	1
1:0.1 to 0.9	28	28	20	20	24	32	37	32
1:1.0 to 1.9	31	36	31	43	35	37	35	35
1:2.0 to 2.9	15	19	22	14	20	10	14	15
1:3.0 to 3.9	16	6	15	13	10	10	7	10
1:4.0 to 4.9	3	3	3	3	2	6	3	1
1:5.0 to 5.9	2	2	2	2	4	—	—	4
1:6.0 to 6.9	2	—	2	2	1	—	—	—
1:7.0 to 7.9	—	2	—	—	—	—	2	—
1:8.0 to 8.9	—	—	—	—	—	—	—	—
1:9.0 to 9.9	—	—	—	—	—	—	—	—
1:10.0 and over	2	1	1	1	—	1	1	1
No cattle	—	2	2	1	1	1	1	1

Hogs were the outstanding source of farm receipts on more than half of all the farms.

Above the cows kept to supply the families with dairy products, most of the farms kept about enough cattle to use the roughage which would otherwise be wasted from the standpoint of feed.

Sheep have never had an important place in the farm organization in this area. Only 31 of the 100 farms had any sheep during the eight years, and none had sheep every year throughout this period. Sheep almost entirely disappeared from these farms after 1915. Most of the flocks varied in numbers from 10 to 20 head.

With reference to poultry, the farms of this area were rather typical Central State farms. Most of them had flocks of 50 to 100 chickens, or from 100 to 150.

Very few farms had flocks of more than 200 chickens. (See Table 17.) The sales of poultry and eggs, after the household needs had been supplied, averaged \$99 per farm the first four years and \$151 per farm the last four years.

Although the production of colts on these 100 farms was unimportant as a source of direct cash income, it was rather important as a source of supply of work animals for these farms. More work animals were sold than bought each year (see Table 24). In addition to maintaining the supply of work animals, colts and work animals together contributed a yearly average of \$41 per farm to the farm receipts. (See Table 1.)

TABLE 24.—*Summary of work animals and colts.*

Item.	Number in—							
	1910	1913	1914	1915	1916	1917	1918	1919
Work animals:								
Beginning of year	476	461	472	491	480	496	457	473
Purchased	45	52	67	60	64	35	53	66
Colts broken	28	26	36	40	36	34	37	29
Total	549	539	575	591	580	565	547	568
Sold	60	70	72	95	78	84	68	93
Died	3	4	9	14	12	14	17	13
End of year	486	465	494	482	490	467	462	462
Total	549	539	575	591	580	565	547	568
Colts foaled	62	51	43	63	54	44	33	18

WORK ANIMALS.

There were rather wide variations in number of work animals on the different farms. The number of work animals on different farms of the same acreage often varied. The number of work animals on 80-acre farms varied from 2 to 6, on 120-acre farms from 3 to 6, and on 160-acre farms from 4 to 9. Most of the farms of 60 acres and less had from 2 to 4 work animals, farms 61 to 100 acres had from 3 to 5, farms from 101 to 140 acres had from 4 to 6, farms from 141 to 180 acres had from 5 to 8 work animals, and farms larger than 180 acres had from 6 to 10. (See Table 25.)

TABLE 25.—Variations in number of work animals per farm.

[Figures in parentheses show number of farms having tractors.]

Acres per farm.	Work animals per farm.	Number of farms in—							
		1910	1913	1914	1915	1916	1917	1918	1919
60 and less	2	9	7	7	5	3	4	5	8
	3	5	8	4	6	6	4	6	3
	4	5		3	3	2	6		1
	5		1					1	1
61 to 100	2	4	2	1	2	3	2	3	1
	3	10	14	15	10	10	12	12	12
	4	11	10	11	13	18	11	15	9
	5	1	4	4	3	2	5	2	4
	6	3			1	1		1	1
101 to 140	2				1	1			
	3	4	7	4	5	3	1	2	1
	4	7	6	7	9	10	5	9	11
	5	7	7	9	5	4	11	8	10
	6	7	5	2	7	7	4	5	3
	7	2	1	1	1				
	8	1	1	1					
141 to 180	3		1	1					
	4	2	3	2	2	1	1	2	4 (1)
	5	4	4	6	2	1	7	2	7
	6	1	2	4	4	4	3	5 (1)	2
	7	2	1	1	2	2	2	3	3 (1)
	8			1	3	3	5	3	1
	9	1							
	10								
	11	1							
Over 180	5		2		1	2	1	3	2
	6	2	3	2	6 (1)	4 (2)	1 (1)	5 (2)	
	7	1	2	3	4 (1)	6 (2)	5 (3)	2 (2)	
	8	2	4	5	2	3 (1)	5 (1)	6 (2)	
	9	3	1	1	5	2	1	1 (1)	
	10	3	1	1		1 (1)	1 (1)		1 (1)
	11		2	1	2	1 (1)			1
	12			1		1			1 (1)
	13	1							
	14		1						
	15	1							
	16			1		1			
	17		1	1	2				

These variations in Table 25 indicate variations in efficiency of work animals on different farms. These variations are expressed in Table 26 in terms of number of acres of corn produced per work animal. More than half of the farms each year produced from 5 to 9 acres of corn per work animal. Those farms producing less than 5 acres per work animal were usually among the smaller ones, while those producing 15 or more acres per work animal were usually among the larger.

TABLE 26.—*Variations in number of acres of corn per work animal.*

[Figures in parentheses show number of farms having tractors.]

Acres of corn per work animal.	Number of farms—							
	1910	1913	1914	1915	1916	1917	1918	1919
4 and less.....	13	11	7	8	6	8	8	4
5 to 9.....	63	59	62	61	59	54	62 (3)	61 (2)
10 to 14.....	24	27	30	29	30	28 (1)	28 (4)	31 (6)
15 to 19.....		3	1	2	4 (2)	8 (4)	2 (1)	4 (2)
20 to 24.....					1	2 (2)		

The farms producing more acres of corn per work animal also were producing more acres of small grains, and of clover and timothy, per work animal. They had more productive animal units per work animal and were better equipped with machinery. (See Table 27.)

TABLE 27.—*Acres of crops and value of machinery per work animal.*

Acres of corn per work animal.	Per work animal.			
	Corn.	Small grains.	Clover and timothy.	Machinery.
	Acres.	Acres.	Acres.	Dollars.
Average of 1910, and 1913-1915:				
4 and less.....	4	5	5	85
5 to 9.....	7	6	6	86
10 to 14.....	11	8	7	92
15 to 19.....	16	13	12	108
Average of 1916-1919:				
4 and less.....	3	3	3	84
5 to 9.....	8	6	6	99
10 to 14.....	12	8	7	119
15 to 19.....	16	12	6	167

While some of these variations no doubt were explained by the quality of the work animals, by the fact that some work animals were also brood mares, or that some farms did considerable outside team work, they suggest the importance of efficiency in the use of work animals. The more successful farms produced 1.7 acres more of corn per work animal on the average than the less successful farms.

There were varying degrees of reduction in number of work animals on farms after getting tractors; but for all 10 of the farms which had tractors, the average size was 267 acres before using tractors and 279 acres after, while the number of work animals averaged 9 per farm before using tractors and 7 after tractors were bought. An average of 9.1 acres of corn per work animal was produced on these farms before using tractors, and 13.6 acres after using them. In this connection, it should be stated that fewer farms were using 2-row cultivators before using tractors than after using them.

MAN LABOR.

There was a yearly average of 19.1 months of man labor per farm in the operation of these farms. Twelve months of this was the farmer's own labor and management, 2.9 months family labor, and 4.2 months hired labor. Thus, about three-fourths of the labor in operating these farms was performed by the farm operator and members of his family and one-fourth was hired. Of the hired labor, 76 per cent was regular hired labor on some of the larger farms for 7 to 12 months of the year and 24 per cent extra hired labor during periods of greatest labor requirement.

The slight variations in the average number of months of labor per farm for the different years are largely accounted for in the variation in acres of land from year to year, for there was practically the same amount of labor per acre of land each year throughout the period.

Most of the 100 farms may be considered as from 1-man to 2-man farms. Seldom did more than 15 per cent of the farms have 27 months or more of man labor. (See Table 28.)

TABLE 28.—*Variations in months of man labor.*

Months of man labor per farm.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
14.9 and less (1.0 man)	41	40	40	35	32	33	39	37
15.0 to 20.9 (1.5 men)	29	32	32	37	41	37	29	26
21.0 to 26.9 (2.0 men)	19	15	14	16	13	13	17	22
27.0 to 32.9 (2.5 men)	9	5	6	3	7	9	10	8
33.0 to 38.9 (3.0 men)	1	5	4	3	3	5	3	7
39.0 to 44.9 (3.5 men)	1	3	3	4	1	2	2	-----
45.0 to 50.9 (4.0 men)	-----	-----	1	1	3	-----	-----	-----
51.0 to 56.9 (4.5 men)	-----	-----	-----	1	-----	1	-----	-----

As with horse labor, there were varying degrees of efficiency in man labor. When expressed in terms of acres of corn produced, some farms were producing less than 15 acres of corn per man, while a few others were producing more than 35, and the greater number of all of the farms were producing from 15 to 34 acres of corn per man. (See Tables 29 and 30.) The more successful farms were not only producing a larger number of acres of corn, but also of small grains, and clover and timothy per man. They were using more horses per man, cared for more productive livestock, and were better equipped with machinery.

TABLE 29.—*Variations in acres of corn per man.*

Acres of corn per man.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
5 to 14	12	13	8	11	7	12	15	7
15 to 24	48	47	44	43	42	23	36	40
25 to 34	33	32	30	27	35	40	33	37
35 to 44	3	7	13	15	11	18	11	12
45 to 54	3	1	4	4	4	5	5	4
55 and over	1	-----	1	-----	1	2	-----	-----

TABLE 30.—*Acres of crops, number of productive animal units and work animals, and value of machinery, per man.*

Acres of corn per man.	Per man.					
	Corn.	Small grains.	Clover and timothy.	Productive animal units.	Work animals.	Machinery.
Average 1910, and 1913-1915:	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Number.</i>	<i>Number.</i>	<i>Dollars.</i>
5 to 14	11	13	13	8.0	2.6	233
15 to 24	20	19	18	11.2	2.8	252
25 to 34	28	24	19	12.8	3.2	276
35 to 44	38	30	24	16.4	4.0	314
45 and over	50	29	18	12.0	4.4	262
Average 1916-1919:						
5 to 14	10	10	12	8.6	2.5	238
15 to 24	20	18	16	11.4	2.8	278
25 to 34	30	22	18	13.2	3.2	316
35 to 44	38	29	20	15.0	3.5	428
45 and over	50	30	22	13.9	3.4	459

FARM CAPITAL.

The average farm capital for the first 4-year period was \$24,038 per farm, and for the second 4-year period \$29,543 per farm. (See Table 1 and fig. 3.) Of the total farm capital, about 90 per cent was in real estate, and 10 per cent in working capital other than real estate. Including buildings, real estate averaged \$174 per acre the first 4-year period, and \$203 the second 4-year period. Exclud-

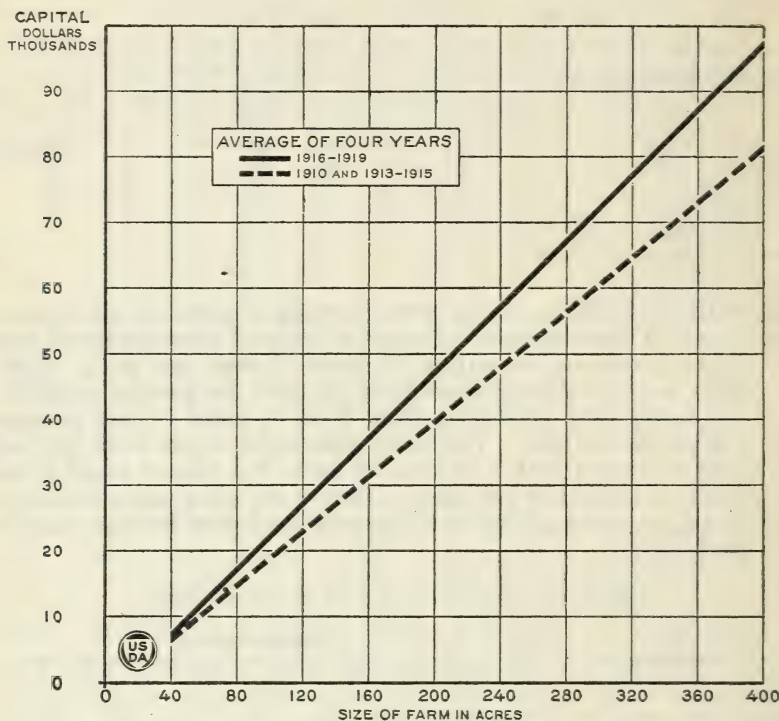


FIG. 3.—The farm capital for the last 4-year period was higher than for the first 4-year period. The capital of the larger farms increased relatively more than that of the smaller farms. The capital of 40-acre farms increased 12 per cent; of 120-acre farms, 17 per cent; and of 240-acre farms, 19 per cent. The amount of increase in capital which on the average accompanied an increase of 1 acre in the size of the farm is shown by the "regression coefficient" of capital on size of farm. The regression line shows the trend of the increase in capital with increase in size of farm. In every case the coefficient for each of the 4 years under consideration was computed and the 4 coefficients then averaged to find the slope of the line shown in the chart. The same principle applies to Figures 6, 7, 11, 12, 14, 15, 16, and 17.

ing buildings, the values were \$160 and \$184 for the respective periods. (See Table 1.)

There was a decided increase in the farm capital of these farms from 1910 to 1919. The increase in land values was from \$147 to \$220 per acre, or slightly more than 50 per cent. From 1910 to 1913 there was a marked increase; from 1913 to 1917 the increase little more than offset the cash outlay for additional improvements put on the farms, but in 1918 there was another marked increase. There were also increases in the average size of the farms, and in the amounts and values of livestock and machinery. From 1910 to 1919 the value

of real estate per farm increased from \$16,977 to \$28,702, or 69 per cent; livestock from \$1,355 to \$2,576, or 90 per cent; cattle more than 200 per cent; hogs and poultry more than 100 per cent; colts 43 per cent; machinery from \$286 to \$484, or 69 per cent; and supplies and cash, from \$437 to \$856, or 96 per cent. Dwellings increased from \$804 to \$1,470, or 83 per cent; and other buildings from \$739 to \$1,659, or 124 per cent.

On account of price declines, the value of the capital in these farms is now (1924) somewhat less than in 1919.

The capital represented in the farm business in this area, although less per farm than in some other parts of the United States, was considerably more than the average capital for all farms in the country. The average value per farm of all farm property of the United States, as reported by the 1910 census, was \$6,444; and by the 1920 census, \$12,084. See Table 31 for the average capital per farm for a few areas of the United States where investigations similar to this were made for the year 1918.

TABLE 31.—*Capital per farm in several areas of the United States where farm business analysis surveys were made in 1918.*

State and county.	Number farms.	Acres per farm.	Capital per farm.		
			Real estate.	Working capital.	Total.
Hillsboro County, N. H. (Receipts: dairy products, 39 per cent; poultry and eggs, 19 per cent; apples, 12 per cent; cattle, 9 per cent; hogs, 3 per cent.)	136	130	\$5, 104	\$2, 084	\$7, 188
Frederick County, Va. (Receipts: apples, 74 per cent; wheat, 9 per cent; cattle, 5 per cent; hogs, 4 per cent; poultry and eggs, 2 per cent.)	125	161	23, 136	3, 380	26, 516
Catawba County, N. C. (Receipts: cotton and seed, 35 per cent; sweet potatoes, 10 per cent; dairy products, 9 per cent; wheat, 8 per cent; corn, 6 per cent; cattle, 6 per cent.)	304	112	7, 397	1, 461	8, 858
Sumter County, Ga.: White farmers (Receipts: cotton and seed, 76 per cent; hogs, 5 per cent; corn, 5 per cent; peanuts, 4 per cent.)	336	387	20, 729	3, 499	24, 228
Colored farmers (Receipts: cotton and seed, 91 per cent; corn, 2 per cent; hogs, 1 per cent; peanuts, 1 per cent.)	214	123	5, 792	1, 212	7, 004
Hillsboro County, Fla. (Receipts: strawberries, 21 per cent; string beans, 12 per cent; potatoes, 12 per cent; oranges, 7 per cent; cabbage, 6 per cent; cucumbers, 6 per cent; tomatoes, 5 per cent; hogs, 5 per cent.)	100	53	5, 336	1, 345	6, 681
Polk County, Fla. (Receipts: oranges, 62 per cent; grapefruit, 27 per cent; tangerines, 7 per cent.)	100	41	20, 129	1, 263	21, 392
Washington County, Ohio. (Receipts: cattle, 25 per cent; poultry and eggs, 18 per cent; sheep, wool, 15 per cent; hogs, 15 per cent.)	25	167	5, 275	2, 451	7, 726
Dane County, Wis. (Receipts: dairy products, 54 per cent; hogs, 29 per cent; cattle, 12 per cent.)	30	145	14, 971	4, 509	19, 480
Clinton County, Ind. (Receipts: hogs, 42 per cent; wheat, 14 per cent; cattle, 13 per cent; oats, 10 per cent; corn, 8 per cent.)	100	127	27, 720	3, 415	31, 135
De Kalb County, Ill. (Receipts: cattle, 31 per cent; hogs, 30 per cent; oats, 11 per cent; wheat, 9 per cent; corn 5 per cent.)	60	223	58, 886	7, 144	66, 030

TABLE 31.—*Capital per farm in several areas of the United States where farm business analysis surveys were made in 1918*—Continued.

State and county.	Number farms.	Acres per farm.	Capital per farm.		
			Real estate.	Working capital.	Total.
Warren County, Iowa..... (Receipts: hogs, 43 per cent; cattle, 19 per cent; wheat, 14 per cent; corn, 8 per cent; poultry and eggs, 6 per cent.)	183	177	\$27, 738	\$4, 330	\$32, 068
Tama County, Iowa..... (Receipts: hogs, 43 per cent; cattle, 18 per cent; corn, 13 per cent; oats, 8 per cent; barley, 6 per cent.)	209	219	55, 526	8, 019	63, 545
Burt County, Nebr..... (Receipts: hogs, 50 per cent; cattle, 36 per cent; wheat, 3 per cent.)	52	235	70, 543	8, 355	78, 898

The variations in amounts of capital employed on each of the 100 farms for each year are shown in Table 32. Note that 61 of the 100 farm businesses had capital of less than \$20,000 in 1910, and only 27 had less than that in 1919; that 86 were capitalized at less than \$30,000 in 1910, against 57 in 1919; and that only 3 were capitalized at over \$50,000 in 1910, against 14 in 1919; which illustrates the decided increase in farm capital from 1910 to 1919.

TABLE 32.—*Variations in amount of capital per farm.*

	1910	1913	1914	1915	1916	1917	1918	1919
	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.
Capital per farm:								
Under \$10,000.....	22	13	12	10	7	5	6	7
\$10,000 to \$19,999.....	39	37	32	34	40	34	27	20
\$20,000 to \$29,999.....	25	25	29	31	23	27	29	30
\$30,000 to \$39,999.....	9	11	15	12	17	19	14	17
\$40,000 to \$49,999.....	2	6	4	4	5	5	12	12
\$50,000 to \$59,999.....	1	4	2	2		2	5	4
\$60,000 to \$69,999.....	1		1	1	2	3		4
\$70,000 to \$79,999.....	1	2	3	2	3	3	2	1
\$80,000 to \$89,999.....		1	1	3	2	1	3	2
\$90,000 to \$99,999.....							1	2
\$100,000 and over.....		1	1	1	1	1	1	1

FARM RECEIPTS.

Of the 8-year average farm receipts, 37 per cent were from the sales of crops, 61 per cent from sales of livestock products and net sales and inventory increases of livestock, and 2 per cent from other sources. (See fig. 4.) The sales of corn, oats, and wheat made up 33 per cent of the total farm receipts, and 90 per cent of the total crop sales. The receipts from hogs amounted to 41 per cent of the total farm receipts and 67 per cent of the receipts from livestock and livestock products; the receipts from cattle were 10 per cent of the total farm receipts and 16 per cent of the receipts from livestock and livestock products; the receipts from poultry and eggs were 4 per cent of the total farm receipts and 7 per cent of the receipts from livestock and livestock products; and the sales of dairy products were almost 4 per cent of the total farm receipts and 6 per cent of the receipts from livestock and livestock products. Receipts from

these seven sources—hogs, corn, oats, cattle, wheat, poultry and eggs, and dairy products—represented 92 per cent of the total farm receipts. (See fig. 5.)

The receipts for the second 4-year period were 76 per cent higher than for the first 4-year period, due mainly to price levels. (See fig. 6.) The item of receipts showing greatest change from the first to the second 4-year period was that of hogs, which represented 37 per cent of the total receipts the first period and 43 per cent the last.

The receipts varied from year to year, both in total and in the items in their makeup. The increase in receipts of the last 4-year period over the first 4-year period was largely a matter of price

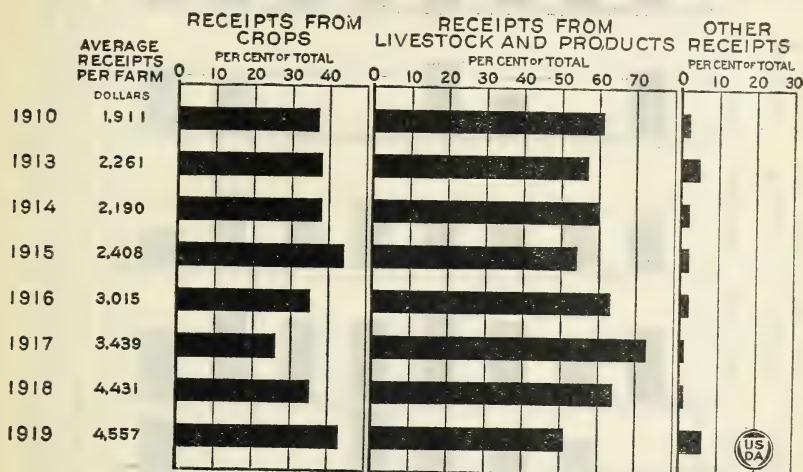


Fig. 4.—Eight-year average receipts from the sales of crops were \$1,117 per farm, or 37 per cent of the total receipts; from livestock and livestock products, \$1,828, or 61 per cent of the total; from other sources, \$62, or 2 per cent of the total. Crop receipts varied from 26 per cent of the total in 1917 to nearly 45 per cent in 1915 and 1919. For each of the other five years they were from 35 to 40 per cent of the total. The receipts from livestock and livestock products varied from slightly over 50 per cent of the total in 1915 and 1919 to over 70 per cent in 1917. For the other five years, they were 55 to 65 per cent of the total.

levels; but in single years, quantity of production, as well as the continuous shifting of the price relations of one product with another, was also important. (See Table 1 for yearly variations in quantities of products sold and prices received.)

The seven largest sources of receipts ranked the same for the averages of each 4-year period as for the 8-year period, although there was some change in the yearly rank of every product except hogs. Hogs ranked first in receipts every year and outranked the second most important source of receipts each year by more than 2 to 1; corn was second in amount of receipts 5 of the 8 years, and oats the other 3; oats were a rather close second to corn in point of receipts for the 8-year period and each of the 4-year periods. Corn lost second place in amount of receipts in 1910 because of low prices compared with wheat and oats (Table 1), and in 1917 and 1918 because of low yields per acre (Table 1). Wheat varied in rank from third place in 1910 and 1919 to seventh place in 1916 and 1917, mainly on account of acres harvested and yields per acre. (See page 17.)

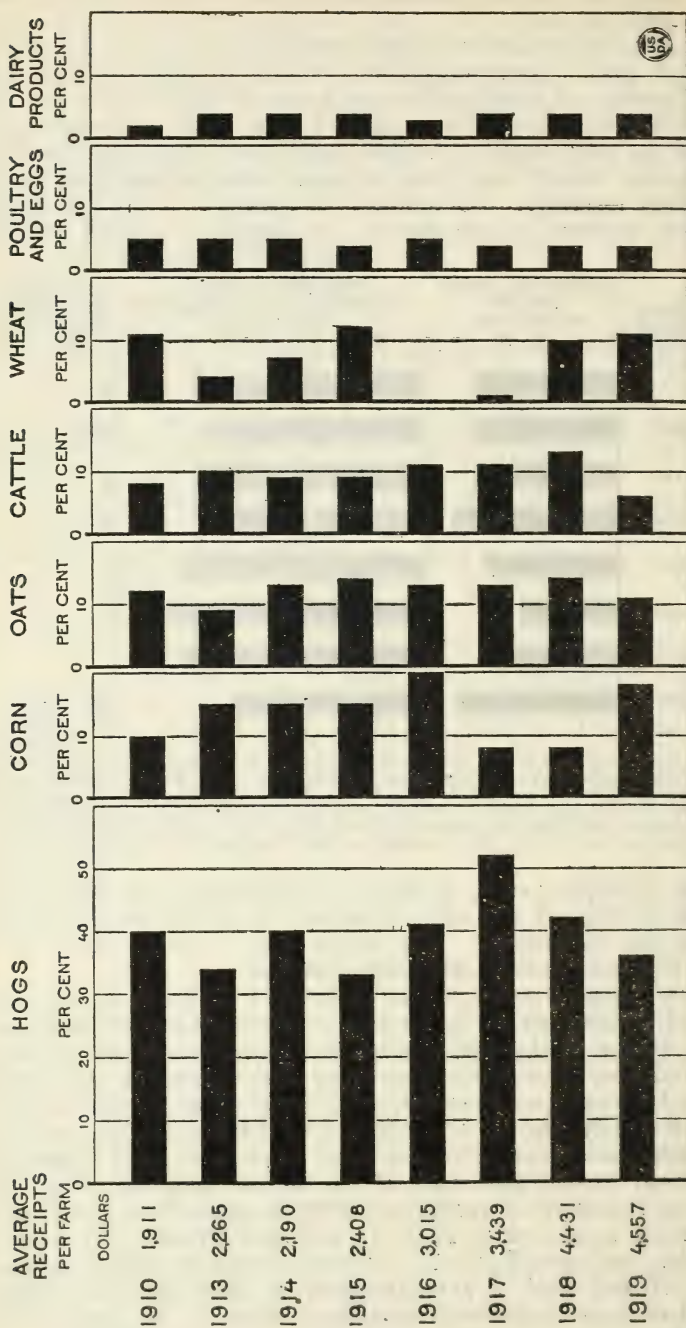


FIG. 5.—The farm receipts from these seven sources when combined represented 92 per cent of the receipts of the 100 farms for the eight years. The greatest variations from year to year were in hogs—the leading kind of livestock and the leading source of receipts; in corn—the leading crop, and in wheat, the crop with greatest acreage variations from year to year. The receipts from hogs varied from 33 per cent of the total in 1915 to 52 per cent in 1917; the receipts from corn varied from 8 per cent in 1918 to 20 per cent in 1916; the receipts from wheat varied from less than 1 per cent in 1916 to 12 per cent in 1915.

Hogs and rye were the only two products showing more than 100 per cent increase in receipts the last 4-year period over the first 4-year period.

In given years, some other products returned greater receipts than some of the seven which were highest for the 8-year average.

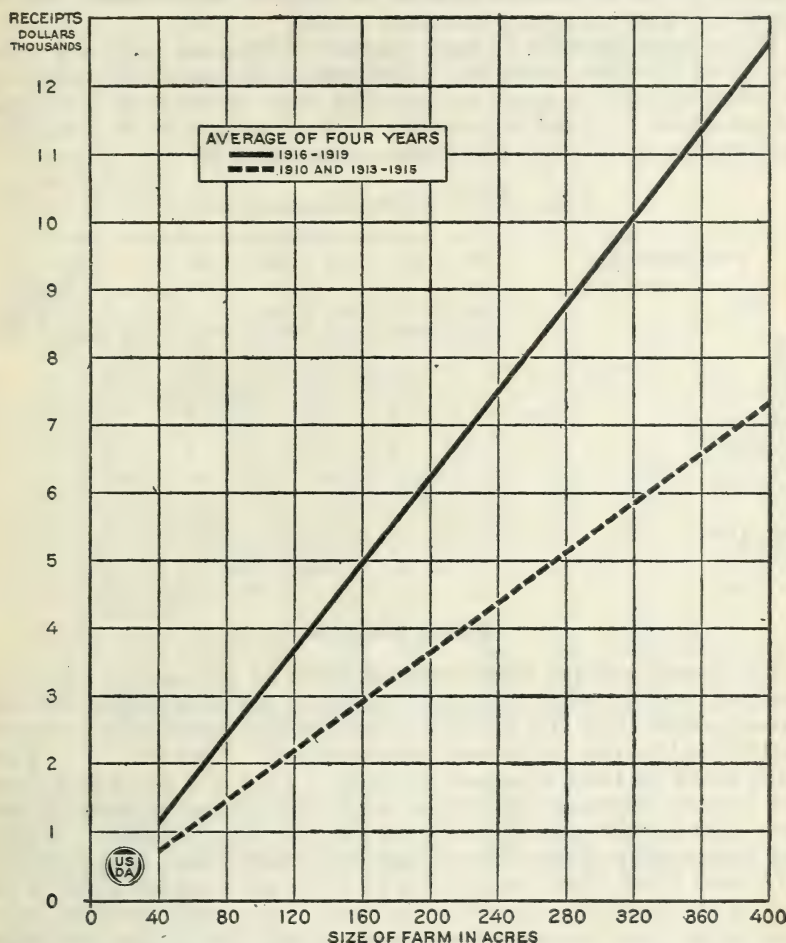


FIG. 6.—Farm receipts for 40-acre farms were 60 per cent higher the last four years than the first four years; for 120-acre farms, 69 per cent higher; and for 240-acre farms, 72 per cent higher.

In 1910, the receipts from colts were more than from dairy products, because of the relatively small quantity of dairy products sold—only about two-thirds of the 8-year average quantity. In 1910, about half the dairy products sold was butter, and half was cream. In 1913, 15 per cent was sold as butter, and 85 per cent as cream; and by 1919 about 1 per cent was sold as butter, 96 per cent as cream, and 3 per cent as market milk.

In 1913 receipts from the sale of clover seed were more than from wheat, dairy products, or poultry. This was the year of greatest

clover-seed production, while that of wheat was less than any of the other years, except 1916 and 1917.

In 1916 sales of hay, clover seed, and colts, and receipts from outside work were each more than sales of wheat; and in 1917 sales of hay and colts exceeded those of wheat, not because of a perceptible increase in the production or relative prices of any of these, but because of the very low production of wheat.

While hogs brought in more money every year than any other branch of the farm industry of the area, frequently some other enterprises brought in more money than hogs on some of the farms. An enterprise of minor importance to the area as a whole brought in most money on a few of the farms. (See Table 33.)

TABLE 33.—*The items of largest receipt*

Item of largest receipt.	1910	1913	1914	1915	1916	1917	1918	1919
	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.	No. farms.
Hogs.....	63	58	70	58	61	83	68	58
Corn.....	15	29	19	28	33	7	7	29
Oats.....	9	4	4	5	2	6	10	4
Wheat.....	7		1	5			8	6
Cattle.....	2	3	4		2	2	4	
Poultry and eggs.....		1	1				1	1
Dairy products.....				1	1	1		
Clover seed.....		2	1		1	1		
Colts.....	2			1				
Outside labor.....	1			1			1	2
Rye.....							1	
Hay.....		1						
Sorghum sirup.....	1							
Tomatoes.....		1						
Onions.....				1				

FARM EXPENSES.

The 8-year average farm expenses were 34 per cent of the farm receipts, and although they were about 70 per cent higher the last 4-year period than the first, they maintained practically the same relation to the receipts in both 4-year periods. (See fig. 7.) Of the items listed as farm expenses in Table 1 that for purchased feeds was highest, representing 19 per cent of the farm expenses; taxes were second, representing 18 per cent of the farm expenses. Repair and depreciation of machinery, buildings, and fences, amounting to \$175, and hired labor, amounting to \$172, each represented 17 per cent of the farm expenses; family labor, 8 per cent; machine work hired, 5 per cent; and purchased seeds, 4 per cent of the total farm expenses. These items totaled \$916 per farm, or 88 per cent of the total expenses (fig. 8).

In comparing the increase in expenses of the last 4-year period over that of the first period, the items of feed bought, seeds bought, and fertilizer, show very large increases. With low production of corn in 1917 and 1918, the livestock production was maintained on these farms by additional purchases of feeds, mostly corn. The large increase in seed expense was largely due to the very high price of clover seed. More fertilizer was bought the latter period than the former. Up until the latter period, wheat was often sown without application of commercial fertilizer, but during the latter years of the investigation all wheat received an application of fertilizer. The

increase in expense for silo filling, twine, fuel and oil, and decrease in value of work animals were relatively much greater than the average increase of all expenses. There was one silo on the 100 farms in 1910 and 22 in 1919. The increase in expense for fuel and oil was increased somewhat by the use of tractors the last few years.

The decrease in value of work animals over the 8-year period was about \$5.50 per animal. (This should not be taken as a depreciation figure for work animals.) For the area as a whole, more animals were raised than was necessary to do the work on the farms, and a number of work stock were replaced by younger ones before they reached depreciation age.

For work animals and colts combined, there was a net receipt of \$41 per farm per year.

Expenses showed less variation than receipts from year to year in each 4-year period (fig. 9).

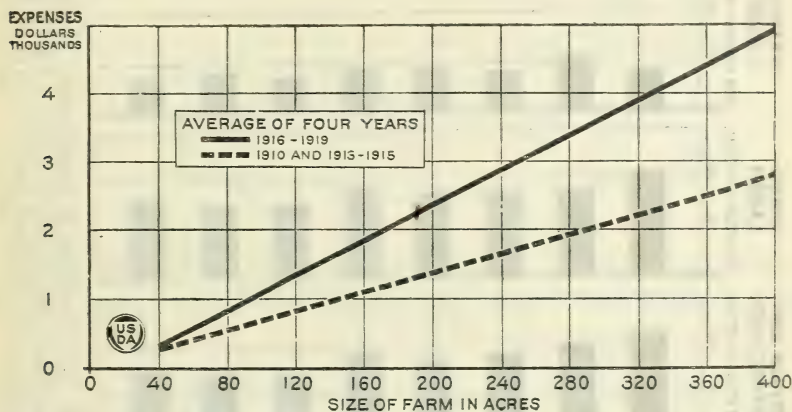


FIG. 7.—Expenses for 40-acre farms were 21 per cent higher the last 4-year period than the first 4-year period; for 120-acre farms, 63 per cent higher; and for 240-acre farms, 73 per cent higher.

FARM EARNINGS.

The annual farm income, or the farm receipts less the farm expenses, averaged \$1,970 per farm for the 8-year period. It was highest in 1918, when it reached \$2,978; and lowest in 1910, when it was \$1,287.

The 8-year average labor income was \$631 per farm, ranging from \$44 per farm in 1914 to \$1,421 per farm in 1918.

The average return on the farm capital was 5.7 per cent, ranging from as low as 3.9 per cent in 1914 to as high as 7.9 per cent in 1918.

The 8-year average value of the family living direct from the farm (which is not included as part of the farm income or labor income above) was estimated at \$347, having increased from \$262 in 1914 to \$493 in 1918.

Estimates of the amounts and value of items of the family living coming directly from the farm were made by the farmers for 1918 and 1919 only. The figures here shown for the earlier years were calculated as follows:

(a) By finding the average quantities of each item per adult equivalent for 1918 and 1919 for each farm.

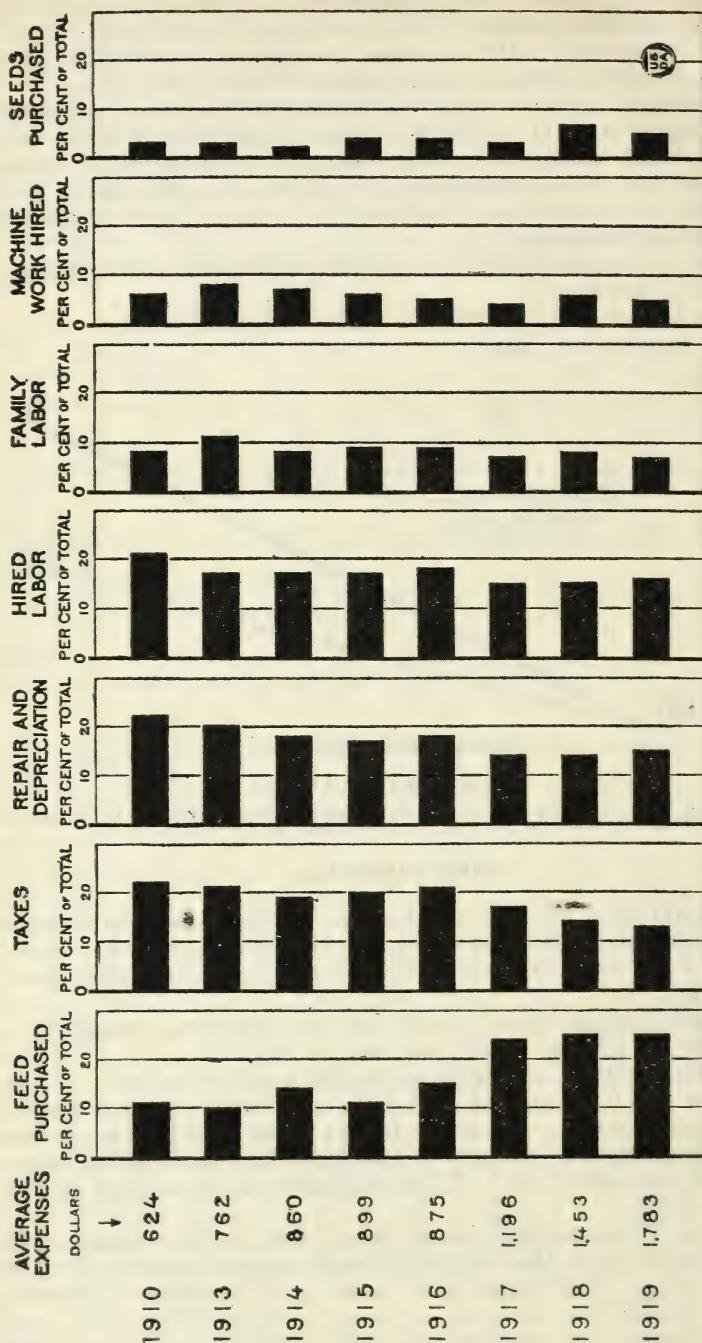


Fig. 8.—These seven items of expenses represented 88 per cent of the total farm expenses for the eight years. Purchased feed represented 19 per cent of the total; taxes, 18 per cent; repair and depreciation of buildings, machinery, and fences, 17 per cent; hired labor, 17 per cent; family labor, 8 per cent; machine work hired, 5 per cent; and seeds purchased, 4 per cent. Feed purchased varied from 10 per cent of the farm expenses in 1913 to 25 per cent in 1918 and 1919; seeds purchased from 2 per cent in 1914 to 7 per cent in 1918. Taxes, repair, and depreciation of buildings, machinery, and fences showed lower percentages of the total expenses the later years than the earlier years. The expenses for these items did not increase so rapidly as did those for the other items.

(b) Multiplying the average quantity per adult equivalent obtained for each farm by the number of adult equivalents in the family on the farm for each of the earlier years.

(c) Giving values for these quantities based upon prices of the several items each year, and

(d) Finding the total of the values for each farm for each year.

For more detail of the items entering into the value of the family living from the farm for 1918 and 1919, see Table 34. For variation in value of the family living from the farm on different farms, see Table 35.

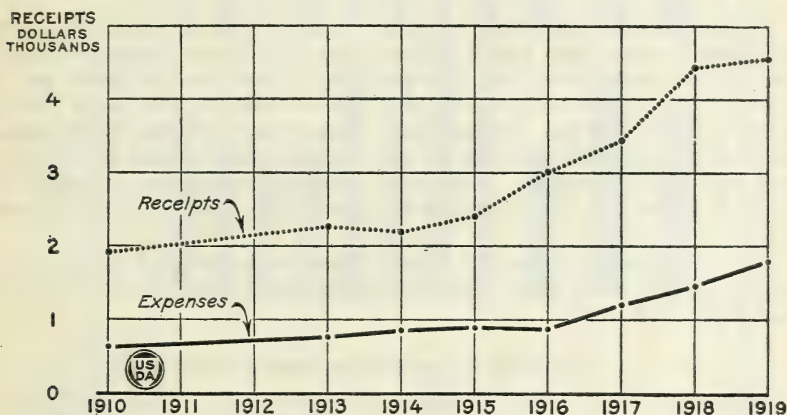


FIG. 9.—Receipts fluctuated more than expenses from year to year and the rise in expenses lagged behind that in receipts.

TABLE 34.—Family living from the farm.

Items furnished by the farm for family use.	1918			1919		
	Quantity.	Value.	Per cent of value of food items.	Quantity.	Value.	Per cent of value of food items.
Corn, bushels.....	1	\$2	0.5			
Wheat, bushels.....	6	13	3.4	7	\$14	4.0
Sirup and sorghum, gallons.....	3	5	1.3	1	3	.9
Potatoes, bushels.....	10	12	3.1	3	8	2.3
Fruit and garden.....		43	11.1		41	11.8
Butter, pounds.....	106	42	10.9	94	37	10.6
Milk, gallons.....	166	42	10.9	155	39	11.2
Beef, pounds.....	18	4	1.0	38	6	1.7
Eggs, dozen.....	110	32	8.3	95	33	9.5
Poultry, head.....	45	33	8.6	49	37	10.6
Pork, pounds.....	711	158	40.9	715	130	37.4
Total food.....		386	100		348	100
Woods, cords.....	3	16		3	15	
Use of house.....		91			127	
Value of all items.....		493			490	
Adult equivalent per farm.....		4.1			3.8	
Value per adult equivalent.....		\$120			\$129	

TABLE 35.—*Variations in value of the family living from the farm.*

Value of family living from the farm.	Number of farms	
	1918	1919
\$250 and under.....	7	2
\$251 to \$500.....	52	59
\$501 to \$750.....	33	32
\$751 to \$1,000.....	6	6
Over \$1,000.....	2	1

Owing to the considerable capital value of the farms in this area, the farm income was much higher than the labor income, the difference between these two representing 5 per cent interest on the farm capital. Because of the difference between the farm income and the labor income, considerable money was available for family use and payment of interest on any indebtedness, even in a year of very low labor income. The most striking illustration of this was in 1914, when the labor income was only \$44, and the farm income, \$1,330.

The variations of each of these forms of earnings for the different farms for each year are illustrated in Tables 36, 37, and 38. (See Figs. 10 to 12.)

TABLE 36.—*Variations in farm income.*

Farm income	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
\$-1,001 to \$-1,500.....								1
\$-501 to \$-1,000.....								
\$0 to \$-500.....		2	2	3		3		
\$1 to \$500.....	17	9	15	10	4	11	4	5
\$501 to \$1,000.....	34	22	28	23	14	10	6	9
\$1,001 to \$1,500.....	24	29	30	25	24	15	7	17
\$1,501 to \$2,000.....	8	14	7	16	21	18	18	11
\$2,001 to \$2,500.....	9	7	9	9	9	10	17	12
\$2,501 to \$3,000.....		9	3	5	8	10	11	10
\$3,001 to \$3,500.....	4	3	1	3	4	4	8	6
\$3,501 to \$4,000.....		2		1	5	6	6	8
\$4,001 to \$4,500.....				2	3	1	8	4
\$4,501 to \$5,000.....	2	2	2	1	3	2	2	4
\$5,001 to \$5,500.....	1		1		1	3		4
\$5,501 to \$6,000.....	1	1	1	1				1
\$6,001 to \$6,500.....				1	1	1	5	3
\$6,501 to \$7,000.....			1		1	4	1	2
\$7,001 to \$7,500.....					1		2	
\$7,501 to \$8,000.....								1
\$8,001 to \$8,500.....						1	1	
\$8,501 to \$9,000.....						1		
\$9,001 to \$9,500.....					1			
\$9,501 to \$10,000.....							1	
Over \$10,000.....							1	2

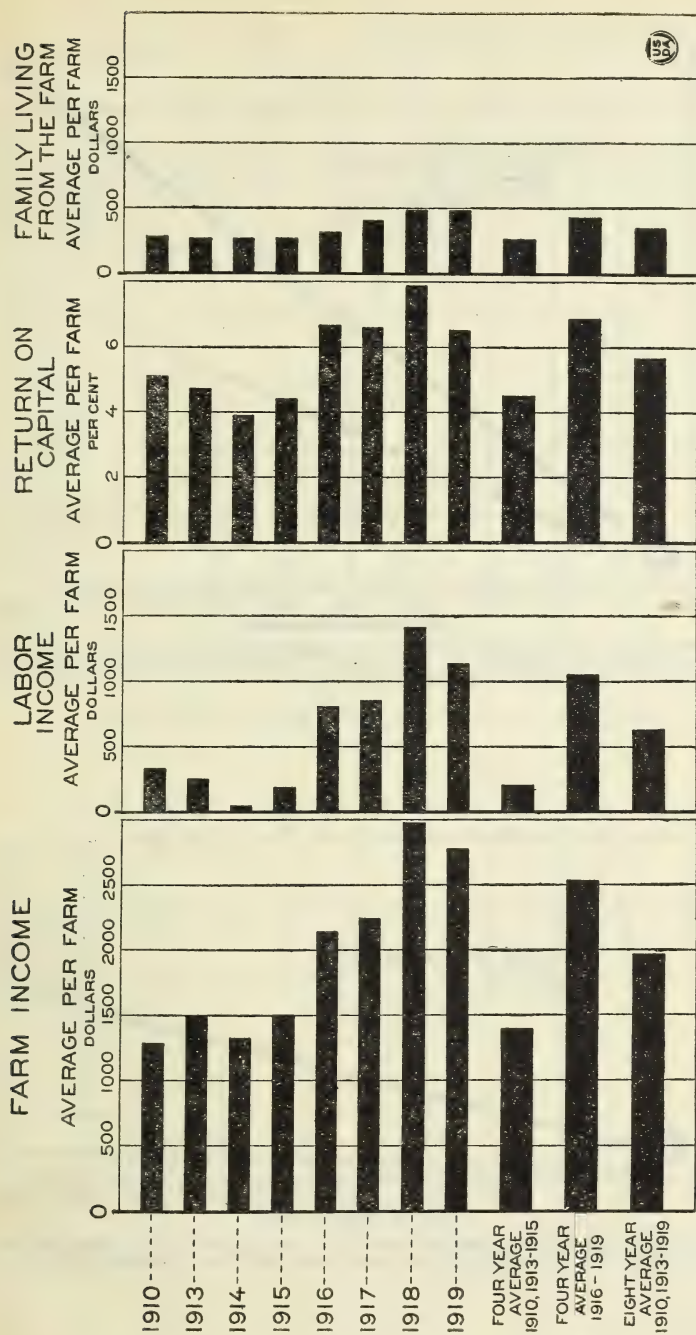


Fig. 10.—The *farm income* is the farm receipts less the farm expenses. The *labor income* is the farm income less 5 per cent interest charge for the farm capital. The *return on capital* is the farm income less the farmers' charge for his labor and management, expressed as percentage of the farm capital. The *family living from the farm* is the value of the food products, fuel, and house rent furnished by the farm toward the living of the farmer and his family.

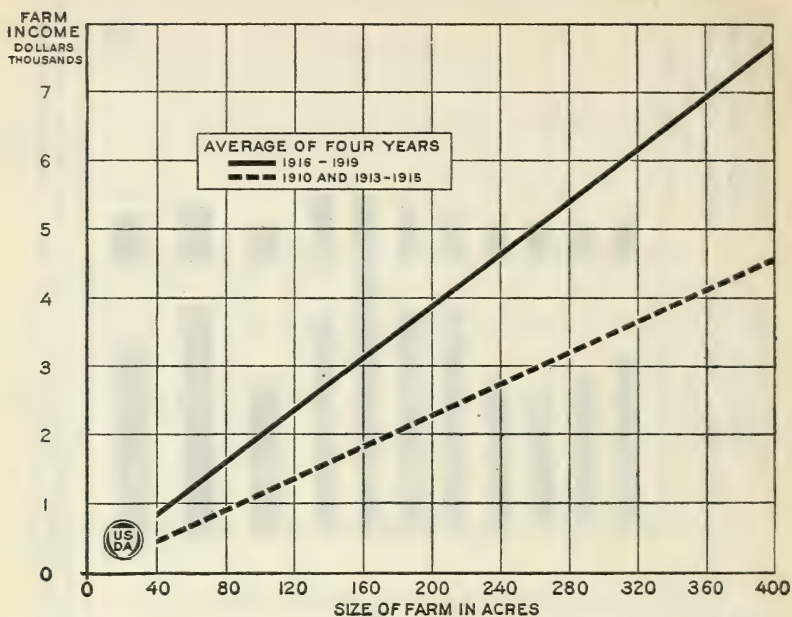


FIG. 11.—Farm incomes increased relatively more on the smaller farms than on the larger farms when the two 4-year periods are compared. The farm incomes on 40-acre farms increased 88 per cent; on 120-acre farms, 73 per cent; and on 240-acre farms, 70 per cent.

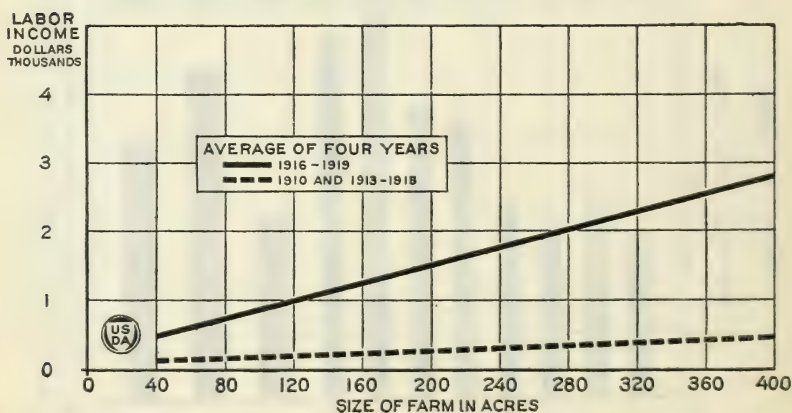


FIG. 12.—The labor incomes of 40-acre farms were about three times as much for the period 1916-1919 as for the period 1910 and 1913-1915; of 120-acre farms, four times as much; and of 240-acre farms, five times as much.

TABLE 37.—Variations in labor income.

Labor income	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
Less than \$-2,250.....	1							1
\$-2,001 to \$-2,250.....			1			1		
\$-1,751 to \$-2,000.....		2		1				1
\$-1,501 to \$-1,750.....								
\$-1,251 to \$-1,500.....	1	1		2		1		1
\$-1,001 to \$-1,250.....	1			1				
\$-751 to \$-1,000.....	1	2	4	3	1	1		2
\$-501 to \$-750.....	3	2	11	4	2	5		3
\$-251 to \$-500.....	7	9	11	10	3	8	3	5
\$-0 to \$-250.....	16	16	26	14	7	13	7	2
\$1 to \$250.....	25	20	18	14	9	9	5	7
\$251 to \$500.....	18	19	13	26	25	7	6	13
\$501 to \$750.....	8	11	8	7	11	8	13	10
\$751 to \$1,000.....	9	8	3	11	9	14	9	7
\$1,001 to \$1,250.....	2	3	2	4	9	7	5	8
\$1,251 to \$1,500.....	2	2		1	7	4	11	6
\$1,501 to \$1,750.....	3	3		1	3	3	8	8
\$1,751 to \$2,000.....	1	1	1	1	4	2	9	6
\$2,001 to \$2,250.....					2	4	6	1
\$2,251 to \$2,500.....			1		1	3	2	3
\$2,501 to \$2,750.....	1		1		2	3	4	4
\$2,751 to \$3,000.....	1	1			1		2	2
\$3,001 to \$3,250.....					2	3	1	1
\$3,251 to \$3,500.....	1				1	1	2	3
\$3,501 to \$3,750.....						1	1	3
\$3,751 to \$4,000.....							1	
\$4,001 to \$4,250.....					1			1
\$4,251 to \$4,500.....						1	1	
\$4,501 to \$4,750.....						1		
\$4,751 to \$5,000.....							1	
\$5,001 to \$5,250.....							2	
\$5,251 to \$5,500.....							1	
\$5,501 to \$5,750.....								
Over \$5,750.....								2

TABLE 38.—Variations in per cent return on capital.

Per cent return on capital.	Number of farms in—							
	1910	1913	1914	1915	1916	1917	1918	1919
-6.6 to -7.5.....	1							
-5.6 to -6.5.....								
-4.6 to -5.5.....								
-3.6 to -4.5.....			1	1				
-2.6 to -3.5.....			1			1		2
-1.6 to -2.5.....		1	2	2		3	1	
-.6 to -1.5.....		1	4	1		2		1
+.5 to +.5.....	3	5	2	7	1	3	4	2
1.6 to 1.5.....	6	2	8	5	3	7		9
1.6 to 2.5.....	17	10	15	7	1	5	3	4
2.6 to 3.5.....	9	9	21	10	8	11	3	5
3.6 to 4.5.....	14	21	18	19	10	5	4	10
4.6 to 5.5.....	15	18	12	16	15	9	14	7
5.6 to 6.5.....	9	8	8	11	14	6	5	13
6.6 to 7.5.....	7	11	3	10	12	7	14	6
7.6 to 8.5.....	7	6	4	7	8	15	9	11
8.6 to 9.5.....	5	3	2	3	8	5	12	8
9.6 to 10.5.....	2	2			11	6	10	7
10.6 to 11.5.....		2			1	1	5	3
11.6 to 12.5.....	2	1	1		4	3	6	4
12.6 to 13.5.....					3	4	3	
13.6 to 14.5.....	1				1	4	3	3
14.6 to 15.5.....						1	3	3
15.6 to 16.5.....								1
16.6 to 17.5.....						1		
17.6 to 18.5.....						1	1	
18.6 to 19.5.....								
19.6 to 20.5.....								
20.6 to 21.5.....								1

QUANTITIES OF PRODUCTS SOLD.

It was difficult to measure, quantitatively, all the products sold from these farms, but the quantities of most of the products sold from the 100 farms are shown in Table 1, together with the number of farms selling each product. This part of the table differs from the other parts, in that it gives the quantities sold from all farms and is not a per-farm figure.

Aside from the yearly variations in the quantities of the several products sold, which depend largely upon yields per acre, and the choice of the farmers as to the uses to which the land is put, and as to whether they shall feed or sell the feed crops, and if fed, to which kinds of stock they shall be fed, this part of the table brings out:

Variation in number of farms selling corn from year to year, and the greater variation in the quantities sold, both affected largely by yearly variations in yields per acre.

Rise, fall, and rise again of wheat production during the period—both in number of farms producing wheat and in total production.

Increasing number of farms producing rye.

Uncertainty of the clover seed crop.

A few farms (usually the smaller farms) intensifying their cropping by growing a few acres of tomatoes which were sold to canneries.

Decrease in number of farms making butter for sale, and the increase in number selling dairy production in the form of cream. Also, five farms selling market milk the last year.

Decrease in number of farms keeping sheep.

Decrease in the practice of caponizing.

PRICES RECEIVED FOR PRODUCTS.

The average yearly prices received for the several products sold from these farms are shown in the last part of Table 1; while the prices received each year, when expressed in per cent of the average prices for the first four years (1910 and 1913-1915), are shown in Table 39.

TABLE 39.—*Index of prices received for the several products sold.*

[Average prices of the four years 1910 and 1913-1915=100.]

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average of 1916-1919.	Average of 1910 and 1913-1919.
Corn.....	76	101	119	104	165	182	250	250	212	156
Oats.....	93	99	107	102	116	177	180	203	169	135
Wheat.....	106	92	91	111	159	240	236	236	218	159
Rye.....	101	85	97	117	169	326	236	251	246	173
Hay.....	90	90	125	95	95	145	143	204	147	123
Clover seed.....	94	88	103	115	112	190	249	268	205	152
Potatoes.....	110	132	68	90	227	165	200	341	233	167
Straw.....	52	175	114	59	82	204	224	348	214	157
Butter.....	87	111	99	102	134	174	188	218	178	139
Cream.....	90	112	98	100	124	170	184	207	171	136
Wool.....	100	79	96	125	125	213	270	213	205	153
Eggs.....	99	100	99	102	117	168	180	220	171	136
Cows.....	83	107	101	109	115	144	173	181	153	127
Heifers.....	81	114	94	110	138	129	191	180	160	130
Calves.....	64	116	116	104	141	176	188	142	162	131
Bulls.....	91	106	94	109	116	180	215	177	172	136
Steers.....	75	116	111	98	119	155	198	173	161	131
Horses.....	100	105	98	97	93	96	89	98	94	97
Colts.....	95	98	89	118	102	89	119	100	102	101
Hogs.....	106	103	97	95	130	209	236	222	199	150
Chickens.....	110	98	96	96	127	126	186	188	157	129

Price levels were the main reasons for the higher receipts and higher farm and labor incomes, etc., the later years as compared with the earlier years of the investigation. In 1919 the average prices received for each crop, for each livestock product, and for hogs were more than 200 per cent of the first 4-year average prices, while those for livestock, other than hogs, were each less than 200 per cent.

In comparing the average prices of products for the last 4-year period with those of the first 4-year period, corn, wheat, rye, clover seed, potatoes, straw, wool, and hogs each sold for about twice as much per unit the last period as the first; oats, dairy products, and eggs each for about three-fourths more; cattle for hardly two-thirds more; hay and chickens each for about one-half more, while horses and colts sold for about the same prices both 4-year periods (fig. 13).

Some farmers obtained higher prices for their products than others, but the prices obtained by fully 75 per cent of them were within a range of 10 per cent from the average of all farms, and those obtained by fully 50 per cent of the farmers within a range of 5 per cent from the average prices for all the farms. These variations were largely due to the quality of the products, the time of selling, or the bargaining abilities of the farmers.

The prices received for products were an important factor in the returns to individual farmers; that is, if uniform selling prices had been applied to each farm, there would have been decided differences in the receipts, farm incomes, etc., of a number of farms, but there were about as many of the less successful farms which received above average prices as there were of the more successful.

ACRES, CROP YIELDS PER ACRE, AND LIVESTOCK RECEIPTS PER ANIMAL UNIT IN RELATION TO FARM EARNINGS.

In the choice of enterprises and of the combination of the factors of production, it must be borne in mind that two quality factors—crop yields per acre and livestock receipts per animal—have important bearings upon the farm profits. The multiplicity of factors contributing to successfully conducted farm businesses render it difficult to so segregate any one factor from the others that the effect of the single factor upon the profits of the business can be measured with exactness. However, with such groupings of farms as in Tables 40 to 47, the influence of the factors of size of farm, crop yields per acre, and receipts per animal unit upon the profits of the farm business, as well as the relative importance of each, may be approximated.

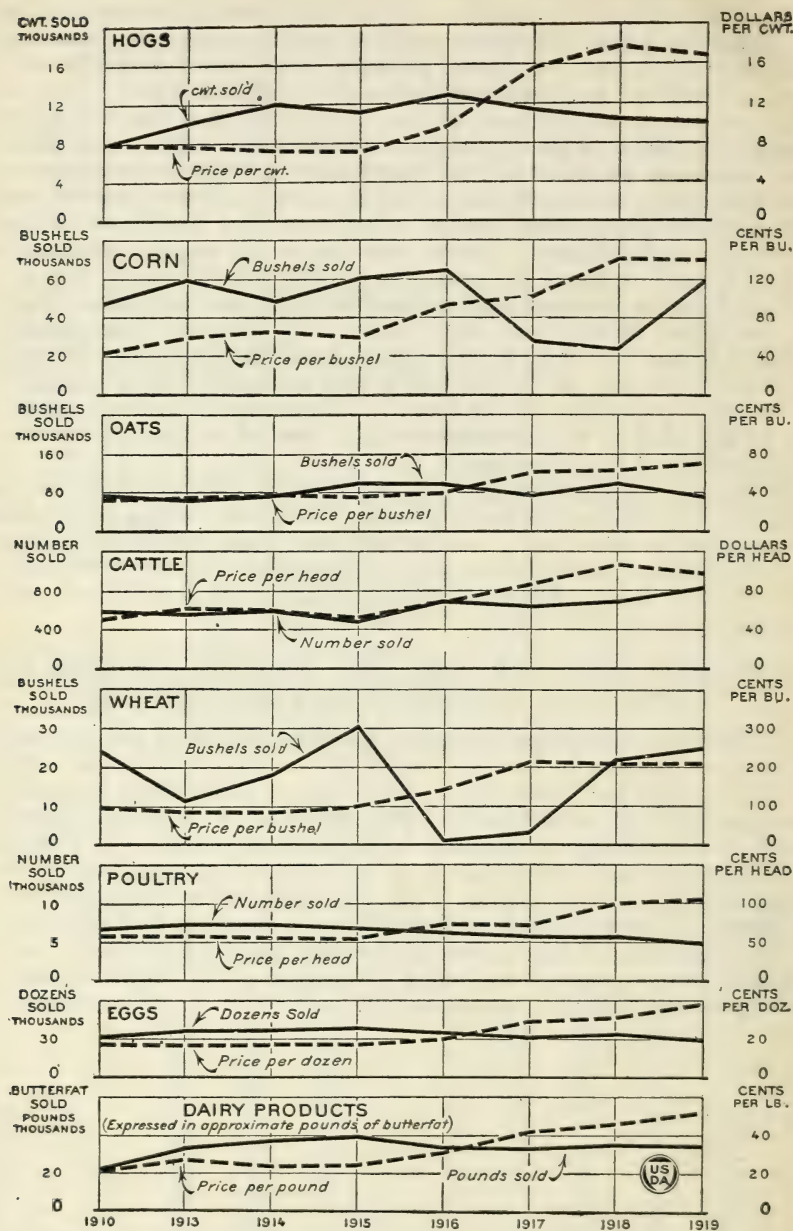


FIG. 13.—The increased earnings of the later years were due almost entirely to higher price levels. Hogs, corn, cattle, and wheat reached peak prices sooner than oats, poultry, eggs, and dairy products. They also reached higher prices during the period of this investigation. Less quantities of some products were sold in the years of higher prices. The quantities of corn and wheat sold fluctuated more from year to year than those of the other products.

TABLE 40.—*Relation of farm income, labor income, per cent return on capital, and family living from the farm, to size of farm (acres).*

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average 1910 and 1913- 1915.	Average 1916- 1919.	Average 1910 and 1913- 1919.
Farm income:											
Farms below average size.....	\$780	\$952	\$714	\$825	\$1,311	\$1,212	\$1,831	\$1,664	\$818	\$1,504	\$1,161
Farms above average size.....	1,858	2,094	1,997	2,115	3,113	3,274	4,328	3,884	2,016	3,650	2,833
Labor income:											
Farms below average size.....	241	258	-13	111	561	444	937	746	149	672	411
Farms above average size.....	444	248	104	255	1,110	1,260	1,990	1,540	263	1,475	869
Per cent return on capital:											
Farms below average size.....	4.4	4.8	2.9	3.6	6.7	5.2	7.4	6.2	3.9	6.4	5.2
Farms above average size.....	5.2	4.7	4.2	4.8	6.8	7.1	8.1	7.0	4.7	7.2	6.0
Family living from the farm:											
Farms below average size.....	\$251	\$230	\$225	\$236	\$272	\$358	\$424	\$411	\$236	\$366	\$301
Farms above average size.....	311	305	302	291	365	460	573	573	302	493	398

TABLE 41.—*Relation of farm income, labor income, per cent return on capital, and family living from the farm, to crop yields per acre.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average 1910 and 1913- 1915.	Average 1916- 1919.	Average 1910 and 1913- 1919.
Farm income:											
Farms below average ¹	\$1,140	\$1,099	\$1,092	\$1,270	\$1,866	\$1,418	\$2,289	\$2,402	\$1,150	\$1,994	\$1,572
Farms above average ¹	1,440	1,870	1,634	1,713	2,414	2,946	3,670	3,079	1,664	3,027	2,346
Labor income:											
Farms below average ¹	229	61	-115	-80	570	117	909	864	24	615	319
Farms above average ¹	448	239	202	415	1,057	1,477	1,933	1,371	326	1,460	893
Per cent return on capital:											
Farms below average ¹	4.2	4.0	2.9	3.3	5.8	3.4	6.1	6.1	3.6	5.4	4.5
Farms above average ¹	5.3	5.4	5.1	5.1	7.6	8.5	9.4	7.0	5.2	8.1	6.7
Family living from the farm:											
Farms below average ¹	\$280	\$251	\$254	\$269	\$303	\$405	\$477	\$480	\$264	\$416	\$340
Farms above average ¹	278	279	269	263	327	412	507	502	272	437	355

¹ In crop yields per acre.

TABLE 42.—*Relation of farm income, labor income, per cent return on capital, and family living from the farm, to livestock receipts per animal unit.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average 1910 and 1913-1915.	Average 1916-1919.	Average 1910 and 1913-1919.
Farm income:											
Farms below average	\$692	\$1,083	\$898	\$1,021	\$1,606	\$1,571	\$2,477	\$2,116	\$924	\$1,942	\$1,433
Farms above average	1,673	1,886	1,700	1,909	2,595	2,839	3,442	3,406	1,792	3,070	2,431
Labor income:											
Farms below average	-34	-39	-145	-160	501	329	1,008	612	-94	612	259
Farms above average	638	513	211	472	1,080	1,316	1,818	1,653	459	1,467	963
Per cent return on capital:											
Farms below average	3.2	3.5	2.7	2.9	5.9	4.3	6.2	4.8	3.1	5.3	4.2
Farms above average	5.3	5.7	4.2	5.4	7.4	7.8	9.2	8.3	5.2	8.2	6.7
Family living from the farm:											
Farms below average	\$279	\$245	\$256	\$259	\$280	\$395	\$449	\$458	\$260	\$396	\$328
Farms above average	279	284	267	271	344	421	534	525	275	456	366

¹ Livestock receipts per animal unit.TABLE 43.—*Relation of number of farms to size of farms (acres), crop yields per acre and livestock receipts per animal unit.*

Size, crop yields, and live-stock receipts. ¹	Number of farms.							
	1910	1913	1914	1915	1916	1917	1918	1919
Farms below average size (acres):								
Crop yields per acre—								
Below average—								
Livestock receipts ¹ —								
Below average	16	18	16	9	18	17	18	13
Above average	11	9	8	10	7	11	10	9
Above average—								
Livestock receipts ¹ —								
Below average	10	13	14	14	11	10	12	17
Above average	16	12	14	14	18	12	14	11
Farms above average size (acres):								
Crop yields per acre—								
Below average—								
Livestock receipts ¹ —								
Below average	10	8	14	15	12	5	10	11
Above average	14	13	12	12	13	13	12	12
Above average—								
Livestock receipts ¹ —								
Below average	9	8	3	7	5	15	9	8
Above average	14	19	19	19	16	17	15	19

¹ Per animal unit.

TABLE 44.—*Relation of farm income to size of farm (acres), crop yields per acre, and livestock receipts per animal unit.*

Groups.	Average farm income.										
	1910	1913	1914	1915	1916	1917	1918	1919	Average 1910 and 1913- 1915.	Average 1916- 1919.	Average 1910 and 1913- 1919.
Farms below average size (acres):											
Crop yields per acre—											
Below average—											
Livestock re- ceipts ¹ —											
Below average.	\$512	\$649	\$482	\$448	\$942	\$615	\$1, 143	\$1, 200	\$523	\$975	\$749
Above average.	780	992	652	892	1, 261	1, 297	2, 389	1, 558	829	1, 626	1, 228
Above average—											
Livestock re- ceipts ¹ —											
Below average.	603	695	698	705	1, 321	1, 220	1, 821	1, 516	675	1, 469	1, 072
Above average.	1, 158	1, 654	1, 030	1, 140	1, 694	1, 973	2, 326	2, 529	1, 246	2, 130	1, 688
Farms above average size (acres):											
Crop yields per acre—											
Below average—											
Livestock re- ceipts ¹ —											
Below average.	1, 244	1, 140	1, 468	1, 205	2, 640	2, 651	2, 974	3, 176	1, 264	2, 860	2, 062
Above average.	2, 064	1, 778	1, 761	2, 282	2, 756	2, 095	3, 355	3, 626	1, 971	2, 958	2, 465
Above average—											
Livestock re- ceipts ¹ —											
Below average.	1, 106	2, 635	1, 608	1, 993	2, 138	2, 528	5, 470	3, 422	1, 836	3, 390	2, 613
Above average.	2, 573	2, 488	2, 597	2, 774	4, 063	5, 016	5, 324	4, 650	2, 608	4, 763	3, 686

¹ Per animal unit.TABLE 45.—*Relation of labor income to size of farm (acres), crop yields per acre, and livestock receipts per animal unit.*

Groups.	Average labor income.										
	1910	1913	1914	1915	1916	1917	1918	1919	Average 1910 and 1913- 1915.	Average 1916- 1919.	Average 1910 and 1913- 1919.
Farms below average size (acres):											
Crop yields per acre—											
Below average—											
Livestock receipts ¹ —											
Below average.	\$1	\$63	—\$149	—\$194	\$316	—\$108	\$357	\$332	—\$70	\$224	\$77
Above average.	320	222	118	65	382	496	1,389	741	181	752	467
Farms above average size (acres):											
Crop yields per acre—											
Below average.	166	—2	—39	29	578	485	945	603	38	653	346
Above average.	473	860	230	422	867	1,143	1,352	1,462	496	1,206	851
Farms above average size (acres):											
Crop yields per acre—											
Below average—											
Livestock receipts ¹ —											
Below average.	—214	—392	—297	—421	735	—260	979	781	—331	559	114
Above average.	733	224	146	311	871	237	1,280	1,610	354	1,000	677
Farms above average size (acres):											
Crop yields per acre—											
Below average—											
Livestock receipts ¹ —											
Below average.	—115	24	96	63	436	916	2,426	855	17	1,188	587
Above average.	983	629	376	823	1,796	2,793	2,969	2,223	703	2,445	1,574

¹ Per animal unit.

TABLE 46.—*Relation of per cent return on capital to size of farm (acres), crop yields per acre, and livestock receipts per animal unit.*

Groups.	Average per cent return on capital.										
	1910	1913	1914	1915	1916	1917	1918	1919	Average 1910, and 1913- 1915.	Average 1916- 1919	Average 1910, and 1913- 1919.
Farms below average size (acres):											
Crop yields per acre—											
Below average—											
Livestock receipts ¹ —											
Below average.	2.4	3.6	1.6	0.9	5.7	1.7	3.8	3.8	2.1	3.8	2.9
Above average.	5.3	4.6	2.6	3.8	5.6	5.4	9.8	7.4	4.1	7.0	5.6
Above average—											
Livestock receipts ¹ —											
Below average.	4.2	3.2	3.0	3.2	6.6	5.7	7.9	5.5	3.4	6.4	4.9
Above average.	5.9	8.3	4.4	5.8	8.3	9.7	9.8	9.3	6.1	9.3	7.7
Farms above average size (acres):											
Crop yields per acre—											
Below average—											
Livestock receipts ¹ —											
Below average.	3.2	2.8	3.3	3.0	5.8	3.0	6.4	6.3	3.1	5.4	4.2
Above average.	6.3	5.1	4.2	5.0	6.2	4.1	6.1	7.5	5.2	6.0	5.6
Above average—											
Livestock receipts ¹ —											
Below average.	3.4	4.4	4.2	4.5	5.4	6.8	8.5	3.4	4.1	6.0	5.1
Above average.	6.8	5.5	4.8	6.2	8.3	10.9	10.6	8.6	5.8	9.6	7.7

¹ Per animal unit.TABLE 47.—*Relation of family living from the farm to size of farm (acres), crop yields per acre, and livestock receipts per animal unit.*

Groups.	Average family living from the farm.										
	1910	1913	1914	1915	1916	1917	1918	1919	Average 1910, and 1913- 1915.	Average 1916- 1919.	Average 1910, and 1913- 1919.
Farms below average size (acres):											
Crop yields per acre—											
Below average—											
Livestock receipts 1—											
Below average.	\$250	\$221	\$221	\$232	\$250	\$370	\$375	\$416	\$231	\$353	\$292
Above average.	277	230	198	235	296	331	446	391	235	366	300
Above average—											
Livestock receipts 1—											
Below average.	255	240	240	239	264	372	450	417	244	376	310
Above average.	232	230	230	237	288	355	448	411	232	376	304
Farms above average size (acres):											
Crop yields per acre—											
Below average—											
Livestock receipts 1—											
Below average.	191	275	284	295	332	420	550	514	261	454	358
Above average.	300	293	303	292	352	509	596	583	297	510	404
Above average—											
Livestock receipts 1—											
Below average.	330	275	393	256	299	431	483	534	314	437	375
Above average.	314	337	300	301	422	459	624	618	313	531	422

¹ Per animal unit.

In Tables 40 to 42 no attempt was made to eliminate the influence of any of the other factors; while in Tables 43 to 47 the influence of each of the two other factors (of the three factors) have been largely eliminated.

In most of the years the farm income was affected more by the acres per farm than by crop yields per acre or by livestock receipts per animal unit, farm income being somewhat of a size resultant. Labor income and percentage return on capital for most of the years were affected more by livestock receipts per animal than by either acres in farm or crop yields per acre. The family living from the farm for most of the years was affected more by the acres in farm than by either of the other two factors.²

On farms, regardless of size, the importance of crop yields per acre and of livestock receipts per animal unit as factors of successful farming can hardly be overemphasized. To bring out the contrast between farms below the average in both of these factors with those above the average in both Table 48 was constructed.

TABLE 48.—*Relation of farm income, labor income, per cent return on capital, and family living from the farm, to farms below and above the average in both crop yields per acre and livestock receipts per animal unit.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919	Average.		
									1910 and 1913-1915.	1916-1919.	1910 and 1913-1919.
Farm income:											
Farms below average ^a	\$794	\$800	\$932	\$921	\$1,621	\$1,078	\$1,797	\$2,106	\$862	\$1,650	\$1,256
Farms above average ^a	1,819	2,165	1,932	2,081	2,809	3,757	3,876	3,872	1,999	3,578	2,789
Labor income:											
Farms below average ^a	-82	-77	-219	-336	484	-142	579	538	-178	365	93
Farms above average ^a	711	718	314	653	1,304	2,111	2,188	1,944	599	1,887	1,243
Per cent return on capital:											
Farms below average ^a	2.7	3.3	2.4	2.2	5.7	2.0	4.7	4.9	2.6	4.3	3.5
Farms above average ^a	6.3	6.6	4.6	6.0	8.3	10.4	10.2	8.9	5.9	9.4	7.7
Family living from the farm:											
Farms below average ^a	\$271	\$238	\$250	\$271	\$283	\$381	\$438	\$461	\$258	\$391	\$324
Farms above average ^a	270	296	270	274	351	416	539	542	278	462	370

^a In both crop yields per acre and livestock receipts per animal unit.

² In a correlation study of acres in farm, crop yields per acre, and livestock receipts per animal unit, with labor income for the 8-year average of each farm, the following coefficients of correlation were obtained:

Acres in farm, and labor income.....	+ .457
Crop yields per acre, and labor income.....	+ .401
Livestock receipts per animal unit, and labor income.....	+ .512
The coefficient of multiple correlation of these factors with labor income obtained was.....	+ .659

FARM TENURE.

The number of farms out of the 100 in this study which were operated by owners (those owning all the land they operated), by owners-additional (those owning part of the land they operated and renting additional land), and by tenants (those renting all the land they operated), is shown in Table 49 for each of the eight years.

TABLE 49.—*Number of farms operated by owners, owners-additional, and tenants*

Year.	Farms operated by—			Tenants who rented for—				
	Owners.	Owners-additional.	Tenants.	Cash.	Part cash and part one-half share of crops.	One-half share of crops.	One-half share of crops and livestock.	Other terms.
1910.....	41	17	42	4	1	19	15	3
1913.....	32	23	45	3	3	18	18	3
1914.....	28	27	45	1	3	18	19	4
1915.....	33	26	41	1	3	16	17	4
1916.....	31	29	40	-----	6	13	18	3
1917.....	30	33	37	-----	5	13	16	3
1918.....	35	28	37	1	2	16	15	3
1919.....	34	30	36	1	2	16	14	3

The percentage of the 100 farms operated by tenants is much the same as that reported by the Bureau of the Census for Clinton County, the census data showing 42 per cent of the farms of the county operated by tenants in 1919, 39 per cent in 1909, and 38 per cent in 1899.

A summary of the business of the farms operated under each of these forms of tenure for the average of each 4-year period is given in Table 50. The table also gives the average divisions of livestock, labor, capital, receipts, expenses, earnings, etc., between the operator and the landlord for the farms operated by owners-additional and by tenants. For more condensed statements for each of the eight years see Table 51.

TABLE 50.—Summary of business of 100 farms by tenure.

Item.	Average of 1910 and 1913-1915.			Average of 1916-1919.		
	Owner farms.	Owner-additional farms.	Tenant farms.	Owner farms.	Owner-additional farms.	Tenant farms.
Acres per farm.....	104	120	142	113	124	148
Owned by operator.....	104	66	---	113	70	---
Cash rented.....	---	5	10	---	4	8
Share rented.....	---	49	132	---	50	140
Wasteland.....	5	5	5	5	5	5
Woodland not pastured.....	2	1	2	2	1	2
Permanent pasture.....	11	7	13	12	8	14
Untillable.....	9	5	9	8	4	9
Tillable.....	2	2	4	4	4	5
Rotation pasture.....	14	14	15	15	14	17
Crops.....	72	93	107	79	96	110
Corn.....	34	37	46	40	45	52
Wheat.....	9	15	14	2	8	10
Rye.....	1	1	---	1	2	2
Oats.....	15	24	28	23	26	31
Hay.....	11	14	13	11	12	13
Fruit.....	1	1	---	1	1	---
Other crops.....	1	1	6	1	2	2
Acres second-cropped.....	5	5	5	2	3	2
Yields per acre:						
Corn..... bushels.....	49	48	47	42	40	42
Wheat..... do.....	21	19	19	20	15	17
Rye..... do.....	16	3	5	12	17	18
Oats..... do.....	44	46	43	42	40	43
Hay..... do..... tons.....	1.3	1.2	1.3	1.2	1.3	1.3
Crop index.....	102	100	99	102	97	101

TABLE 50.—Summary of business of 100 farms by tenure—Continued.

Item.	Owner farms.	Farm.	Operator.	Land-lord.	Farm.	Ten-ant.	Land-lord.	Owner farms.	Farm.	Operator.	Land-lord.	Farm.	Ten-ant.	Land-lord.
Livestock:														
Productive animal units, total	20.8	18.5	18.2	0.3	20.3	13.0	7.3	22.4	18.0	17.8	0.2	21.4	14.4	7.0
Cattle	7.0	5.9	5.8	.1	7.2	4.6	2.6	7.8	6.6	6.6	—	8.8	5.7	3.1
Colts	1.0	.8	.8	—	.8	.6	.2	1.0	.8	.8	—	.8	.7	.1
Sheep	2.2	2.2	2.2	—	.4	—	.2	—	—	—	—	—	.1	.1
Hogs	11.2	10.2	10.0	.2	10.7	6.5	4.2	12.0	9.4	9.2	.2	10.5	6.9	3.6
Poultry	1.4	1.4	1.4	—	1.2	1.1	1.1	1.5	1.2	1.2	—	1.1	1.0	.1
Receipts per animal unit	\$94	\$64	\$64	\$42	\$64	\$63	\$66	\$115	\$112	\$111	\$63	\$123	\$125	\$135
Number work animals	4.8	4.5	4.5	—	5.0	4.9	.1	4.5	4.6	4.6	—	4.9	4.4	.5
Labor, total.	18.6	18.5	18.5	—	19.3	19.3	—	19.2	19.5	19.5	—	19.5	19.5	—
Regular hired	2.3	2.3	2.3	—	4.2	4.2	—	2.9	2.9	2.9	—	3.8	3.8	—
Extra hired	.9	.9	.9	—	1.3	1.3	—	1.0	.9	.9	—	1.5	1.5	—
Family	3.4	3.3	3.3	—	3.3	1.8	—	3.3	3.7	3.7	—	2.2	2.2	—
Operator's	12.0	12.0	12.0	—	12.0	12.0	—	12.0	12.0	12.0	—	12.0	12.0	—
Capital, total.	\$20,979	\$22,229	\$13,615	\$8,614	\$27,486	\$1,817	\$25,669	\$26,580	\$27,172	\$17,116	\$10,056	\$34,034	\$2,626	\$31,408
Real estate	18,533	19,984	11,386	8,598	24,972	—	24,972	23,278	24,326	14,293	16,033	30,304	3	30,301
Land	16,565	18,223	9,806	8,417	23,349	—	23,349	20,483	21,928	12,178	9,749	28,169	—	28,169
Dwelling	945	880	782	98	771	—	771	1,297	1,189	1,020	169	927	—	927
Other buildings	1,023	881	798	83	852	—	852	1,498	1,209	1,095	115	1,208	3	1,205
Working capital.	2,446	2,245	2,229	16	2,514	1,817	697	3,302	2,846	2,823	23	3,730	2,623	1,107
Livestock	1,595	1,429	1,418	11	1,604	1,171	433	2,131	1,824	1,814	10	2,529	1,743	786
Machinery	364	360	380	—	360	452	61	452	431	431	—	449	381	68
Feed	372	348	343	6	431	285	166	584	515	502	13	645	423	222
Cash to run farm	115	88	88	—	119	82	37	135	76	76	—	107	76	31
Value real estate per acre	178	166	172	159	176	—	176	206	195	203	187	205	—	205
Receipts, total.	1,832	2,121	1,714	436	2,471	1,855	1,205	3,396	3,518	2,848	744	4,424	2,432	2,144
Crops.	493	901	512	389	1,138	496	669	814	1,438	794	685	1,822	737	1,188
Corn	137	308	114	194	429	160	295	245	591	212	418	686	223	563
Wheat	135	189	131	68	227	109	118	124	269	210	59	376	178	198
Rye	2	1	1	—	2	—	2	18	28	20	8	35	14	31
Oats	151	297	205	92	345	165	180	374	436	292	145	616	285	331
Hay	18	47	18	29	43	13	31	24	59	23	37	72	16	59
Fruit	3	1	1	—	2	1	1	2	4	4	1	—	—	—
Clover seed	41	55	39	16	78	39	39	21	29	12	17	26	15	11
Other crops	6	3	3	—	12	9	3	6	6	22	—	11	6	6

	1, 294	1, 104	1, 149	15	1, 292	817	475	2, 516	1, 993	1, 961	32	2, 515	1, 641	876
Livestock and products.....														
Dairy products.....														
Cattle.....	95	92	92	2	64	57	7	139	140	140		132	120	12
Hogs.....	181	136	134	2	238	142	106	300	241	241		509	314	255
Colts.....	58	54	54		62	50	12	44	23	23		24	20	6
Sheep and wool.....	4	4	4		21	12	9	3	3	3		14	10	4
Hogs.....	860	701	748	13	811	476	335	1, 832	1, 437	1, 405	32	1, 647	1, 056	591
Poultry and eggs.....	106	117	117		86	80	6	178	149	149		129	121	8
Increase in feed inventory.....	13	12	10	2	2	3	1	22	43	49		45	13	31
Cash rent.....	32	44	43	29	39	39	60	44	44	44	27	42	41	47
Other receipts.....				1										2
Expenses, total.....	716	704	650	84	891	568	357	1, 258	1, 113	1, 061	126	1, 430	1, 002	570
Hired labor.....	106	106	105		186	184	2	186	175	175		247	243	4
Family labor.....	90	87	87		45	44	1	118	124	124		72	72	
Repair and depreciation:														
Machinery.....	54	62	62		59	50	9	76	69	69		92	79	13
Dwelling.....	23	20	18	2	23	23	23	29	27	24	3	3		28
Other buildings.....	33	29	25	4	32	32	32	47	38	35	3	42		42
Repair, fences, drains, etc.....	30	41	22	19	39	39	39	41	56	35	21	40		49
Feed purchased.....	108	79	78	1	92	78	42	340	199	240	1	360	322	141
Seeds purchased.....	24	18	17	1	25	15	10	53	60	40	20	81	39	42
Fertilizer.....	8	4	4		10	5	5	14	13	9	4	27	13	14
Machine work hired.....	42	53	52	1	61	50	12	53	63	62	1	74	62	12
Insurance.....	8	7	7		7	3	4	10	8	8		8	4	4
Taxes.....	133	143	87	56	188	19	169	186	182	115	67	240	33	207
Decrease feed inventory.....											5			
Cash rent.....			30			60				27			47	
Other expenses.....	57	55	55		54	45	9	105	99	98	1	100	88	14
Farm income.....	1, 116	1, 417	1, 064	352	1, 650	802	848	2, 138	2, 405	1, 787	618	3, 004	1, 430	1, 574
Interest on capital at 5 per cent.....	1, 049	1, 112	680		1, 374	91		1, 329	1, 358	855		1, 702	1, 332	
Labor income.....	67	805	884		276	711		809	1, 047	982		1, 802	1, 298	
Operator's labor and management.....	315	331	331		336	336		461	465	405		518	518	
Per cent return on capital.....	3.8	4.9	5.4	4.1	4.8	25.7	3.3	6.3	7.1	7.7	6.1	7.3	84.7	5.0
Family living from the farm.....	291	282	282		241	241		402	426	426		395	395	

NOTE.—Total receipts and total expenses of operator, or tenant, and landlord on owner-additional or tenant farms, when combined, equal more than total receipts and expenses of farm. This also occurs for some of the items of receipts and expenses. These apparent discrepancies are due to transactions occurring between operators, or tenants, and landlords and which do not affect the receipts and expenses for the farm; e. g., when the tenant buys \$100 worth of the landlord's corn, the landlord has a receipt of \$100 and the tenant an expense of \$100 for feed purchased, but the \$100 is neither a receipt nor an expense for the farm. This also applies to Tables 54, 57, 58, 59, and 60.

TABLE 51.—Summary for 100 farms by tenure.

Item.	1910	1913	1914	1915	1916	1917	1918	1919
<i>Acres in farm:</i>								
Owner farms.....	94	101	111	109	116	111	109	117
Owner—additional farms.....	116	126	121	119	120	126	124	127
Owned.....	65	70	66	65	66	69	72	75
Rented.....	51	56	55	54	54	57	52	52
Tenant farms.....	137	140	138	152	148	150	146	146
<i>Capital:</i>								
Owner farms.....	\$16,338	\$20,695	\$23,443	\$23,441	\$24,928	\$24,525	\$27,495	\$29,372
Owner—additional farms— Farm.....	18,595	24,060	23,443	22,820	23,156	25,847	29,003	30,680
Operator.....	11,653	14,596	14,366	13,845	14,143	15,850	18,455	20,915
Landlord.....	6,942	9,464	9,077	8,975	9,013	9,997	10,548	10,665
Tenants farms— Farm.....	21,893	28,401	28,512	31,139	30,389	32,257	36,192	37,297
Tenant.....	1,605	1,731	1,882	2,051	2,014	2,486	2,776	3,229
Landlord.....	20,288	26,670	26,630	29,088	28,375	29,771	33,416	34,068
<i>Receipts:</i>								
Owner farms.....	1,479	1,860	1,947	2,072	2,905	3,143	3,833	3,814
Owner—additional farms— Farm.....	2,177	2,373	2,092	1,946	2,659	2,864	4,325	4,440
Operator.....	1,841	1,898	1,673	1,547	2,105	2,366	3,568	3,556
Landlord.....	344	497	463	444	601	555	875	959
Tenant farms— Farm.....	2,224	2,488	2,342	2,926	3,373	4,120	4,997	5,242
Tenant.....	1,272	1,402	1,240	1,553	1,851	2,396	2,808	2,799
Landlord.....	1,038	1,207	1,163	1,461	1,640	2,029	2,385	2,572
<i>Expenses:</i>								
Owner farms.....	523	690	817	865	942	1,090	1,381	1,731
Owner—additional farms— Farm.....	636	740	865	679	691	1,088	1,237	1,601
Operator.....	569	675	825	632	638	1,024	1,245	1,539
Landlord.....	75	87	84	92	100	121	160	137
Tenant farms— Farm.....	718	815	826	1,020	971	1,307	1,568	1,870
Tenant.....	498	592	517	653	660	957	1,184	1,334
Landlord.....	306	344	370	455	429	655	580	665
<i>Farm income:</i>								
Owner farms.....	956	1,170	1,130	1,207	1,963	2,053	2,452	2,083
Owner—additional farms— Farm.....	1,541	1,633	1,227	1,267	1,968	1,776	3,038	2,839
Operator.....	1,272	1,223	848	915	1,467	1,342	2,323	2,017
Landlord.....	269	410	379	352	501	434	715	822
Tenant farms— Farm.....	1,506	1,673	1,516	1,906	2,402	2,813	3,429	3,372
Tenant.....	774	810	723	900	1,191	1,439	1,624	1,465
Landlord.....	732	863	793	1,006	1,211	1,374	1,805	1,907
<i>Labor income:</i>								
Owner farms.....	139	135	-42	35	717	827	1,078	614
Owner—additional farms— Farm.....	611	430	55	126	810	484	1,588	1,305
Operator.....	689	493	130	223	760	551	1,403	1,016
Tenant farms— Farm.....	411	253	91	349	883	1,200	1,619	1,507
Tenant.....	694	723	629	797	1,090	1,315	1,485	1,303
<i>Per cent return on capital:</i>								
Owner farms.....	4.1	4.1	3.4	3.8	6.6	6.9	7.1	4.9
Owner—additional farms— Farm.....	6.5	5.5	3.8	4.0	7.0	5.4	8.7	7.2
Operator.....	8.1	6.2	3.6	4.1	7.9	6.0	9.8	7.0
Landlord.....	3.9	4.3	4.2	3.9	5.6	4.3	6.8	7.7
Tenant farms— Farm.....	5.0	4.7	4.1	5.0	6.7	7.3	7.9	7.2
Tenant.....	27.7	27.6	20.5	27.0	35.9	39.9	38.3	24.4
Landlord.....	3.6	3.2	3.0	3.5	4.3	4.6	5.4	5.6

TABLE 51.—*Summary for 100 farms by tenure—Continued.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919
<i>Family living from the farm:</i>								
Owner farms.....	\$309	\$286	\$284	\$285	\$344	\$427	\$535	\$543
Owner—additional farms—								
Farm.....	286	286	284	272	319	417	478	491
Operator.....	286	286	284	272	319	417	478	491
Tenant farms—								
Farm.....	247	239	235	244	288	388	464	441
Tenant.....	247	239	235	244	288	388	464	441

NOTE.—For apparent discrepancies between this table and Table 50 see note to Table 1 and note to Table 50.

It has already been pointed out that the tendencies were toward greater earnings as the size of the farms increased.

Table 50 brings out that for the first 4-year period (1910, and 1913–1915), owners averaging \$20,979 capital received \$1,116 yearly returns for their labor and the use of their capital (farm income), by operating farms averaging 104 acres, all of which were owned; that owners-additional, averaging \$13,615 capital, received \$1,064 as yearly returns for their labor and the use of their capital, by operating farms averaging 120 acres, 66 acres of which were owned, and 54 acres rented; and that tenants with capital averaging \$1,817 received \$802 as returns for their labor and the use of their capital by operating farms of 142 acres, all of which were rented; while the landlords of tenant farms with \$25,669 of capital received \$848 as yearly returns for the use of their capital.

During the second 4-year period (1916–1919), owners averaging \$26,580 capital received \$2,138 as yearly returns for their labor and the use of their capital, by operating farms averaging 113 acres; owners-additional averaging \$17,116 capital received \$1,787 as yearly returns for their labor and the use of their capital, by operating farms averaging 124 acres, 70 acres of which were owned and 54 acres rented; and that tenants with capital averaging \$2,626 received \$1,430 as yearly returns for their labor and the use of their capital, by operating farms averaging 148 acres, while the landlords of tenant farms with \$31,408 capital received \$1,574 as yearly returns for the use of their capital.

These are significant when the amount of an operator's capital is limited, in that he could operate a larger farm as an owner-additional, and a still larger farm as a tenant, than he could as an owner. The average yearly return on the tenants' capital, all of which was working capital, after allowing for their own labor and management, was 25.7 per cent for the first 4-year period, and 34.7 per cent for the second 4-year period, while the average yearly return on landlords' capital, 97 per cent of which was real estate, was 3.3 per cent and 5 per cent for the respective 4-year periods.

The tendency for owners-additional to operate larger farms than owners, and for tenants to operate larger farms than either owners-additional or owners, is further emphasized in the distribution of the size of the farms of the several tenures. About half of the owners operated farms of 80 acres or smaller, while only about one-third of the owners-additional and about one-fourth of the tenants operated

farms of 80 acres or smaller. On the other hand, while scarcely one-eighth of the owners operated farms larger than 160 acres, about one-fifth of the owners-additional and more than one-fourth of the tenants operated farms of larger than 160 acres. (See Table 52.)

TABLE 52.—*Variations in size of owner, owner-additional, and tenant farms, 1913 and 1918.*

Groups.	1913			1918		
	Owner farms (32).	Owner-additional farms (23).	Tenant farms (45).	Owner farms (35).	Owner-additional farms (28).	Tenant farms (37).
Acres per farm:	Number.	Number.	Number.	Number.	Number.	Number.
20 and under.....				1		
21 to 60.....	8	2	6	7	3	2
61 to 100.....	12	7	11	12	8	12
101 to 140.....	8	4	15	6	6	12
141 to 180.....	1	7	2	6	7	2
181 to 220.....	1	1	5	1	2	2
221 to 260.....	1	1	2		2	3
261 to 300.....		1		1		
301 to 340.....	1		2			2
341 to 380.....			1	1		1
381 to 420.....			1			
421 to 460.....						1

In connection with this phase of the subject, the following questions are pertinent:

(1) How much capital was required by owners, by owners-additional, and by tenants, to operate farms of given sizes?

(2) How much farm income was made by owners, by owners-additional, and by tenants operating farms of given sizes?

(3) How much farm income was made by owners, by owners-additional, and by tenants, with given amounts of capital?

(4) How much capital was required by landlords owning farms of given sizes, how much farm income was returned to them, and what percentage did they make on their capital?

Approximate answer to some of these questions may be had from Figures 14, 15, 16, and 17, which were mathematically constructed from the yearly data for the farms of each tenure and averaging the first four years and the last four years. These figures do not necessarily answer the questions for any particular farm, but they do represent approximately the average amounts of capital used by owners and by tenants in operating farms of the given sizes, and the corresponding farm incomes returned to owners and to tenants for each 4-year period; and the capital requirement of landlords for farms of given sizes with the corresponding returns in landlords' farm income. They indicate what may reasonably be expected in this area on the average, under conditions as existing during each of the periods. There were such variations in the proportion of the land owned by owners-additional that in this respect some of them were much like owners, some much like tenants, and others about midway between owners and tenants.

The tenants' farm incomes were more than half of the total farm incomes of the smaller farms, while the landlords' farm incomes were more than half of the total farm incomes of the larger farms. This proportionate division of the farm incomes between tenants and landlords is in keeping with the facts that on the smaller tenant farms the tenants usually furnished all the working capital, the

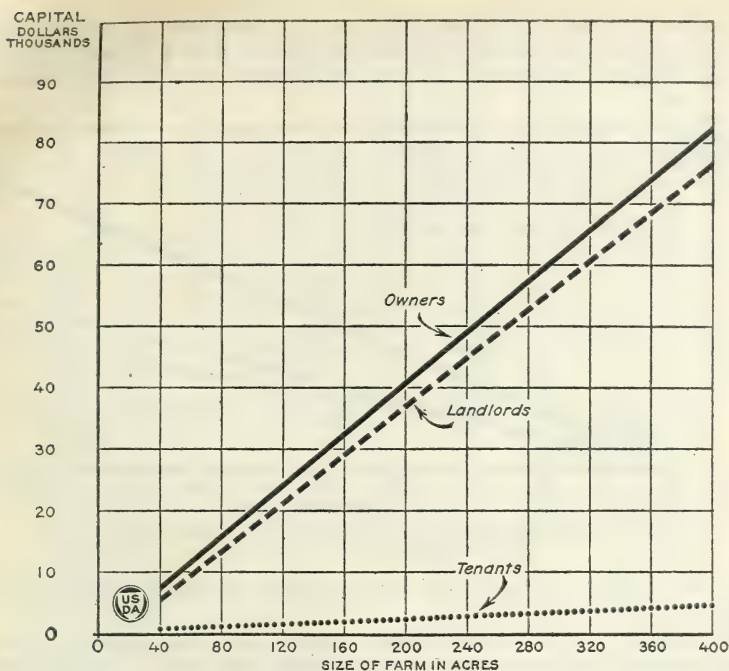


FIG. 14.—The amount of an owner's, landlord's, or tenant's capital on given sized farms, 1910 and 1913-1915, may be approximated from this figure.

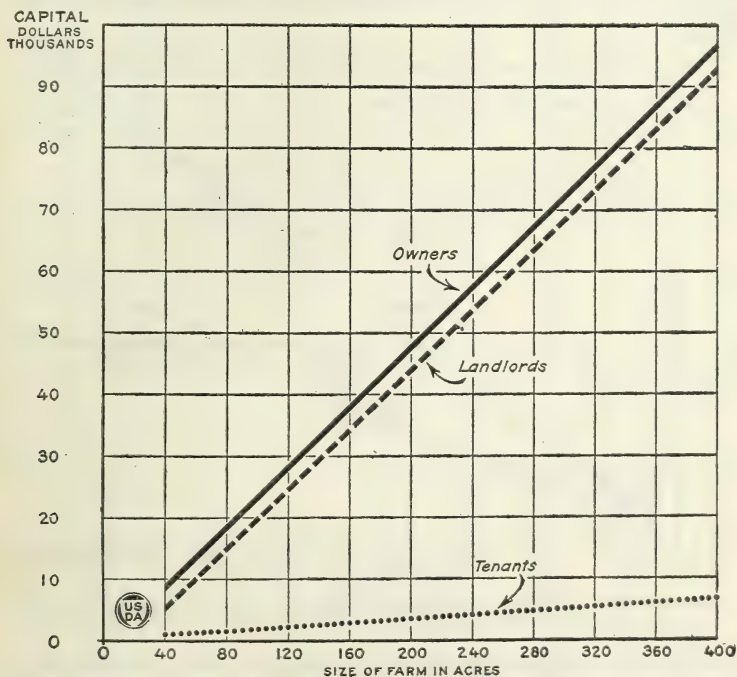


FIG. 15.—The amount of an owner's, landlord's, or tenant's capital on given sized farms, 1916-1919, may be approximated from this figure.

landlords furnishing only the real estate, while on the larger tenant farms the landlords usually furnished part of the working capital as well as the real estate; and that real estate usually contributes a

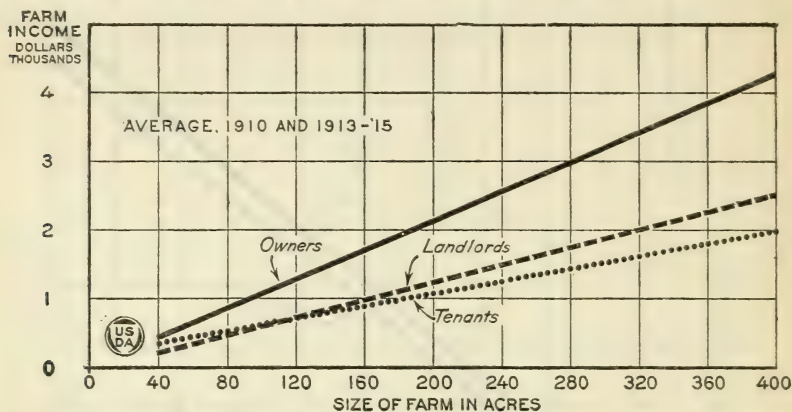


FIG. 16.—The farm income of an owner, landlord, or a tenant on given sized farms, 1910 and 1913-1915, may be readily approximated from this figure.

larger proportion to the total farm income on large farms than on small farms.

The variations of size of farms, capital, and the earnings for the farms operated by owners, owners-additional, and tenants for the

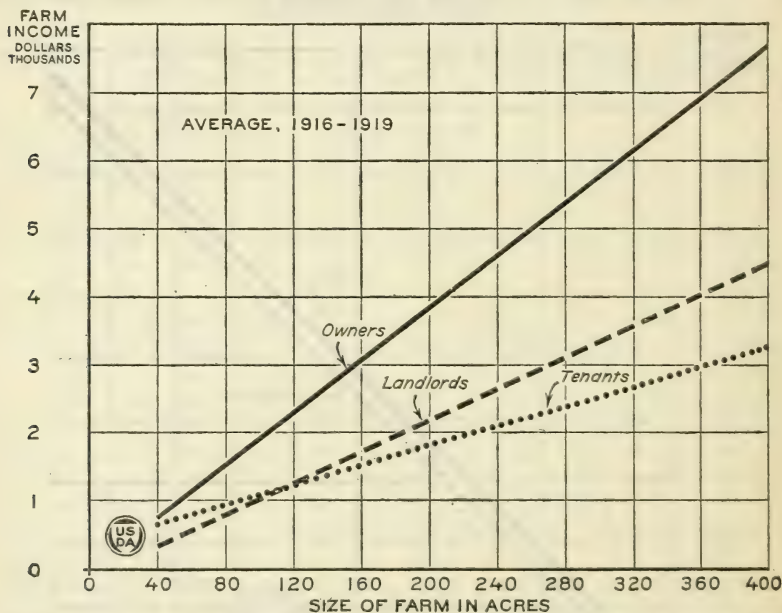


FIG. 17.—The farm income of an owner, landlord, or a tenant on given sized farms, 1916-1919, may be readily approximated from this figure.

years 1913 and 1918 are given in Tables 52 to 56. In case of farms operated by owners-additional and by tenants, the data are shown for the entire farms, for the operator's share, and for the landlord's share.

TABLE 53.—Variations in capital of owner, owner-additional, and tenant farms, 1913 and 1918.

Groups.	1913			1918		
	Owner farms (32).	Owner-additional farms (23).	Tenant farms (45).	Owner farms (35).	Owner-additional farms (28).	Tenant farms (37).
Capital per farm:	Number.	Number.	Number.	Number.	Number.	Number.
Farm—						
\$1 to 999						
1,000 to 1,999						
2,000 to 2,999						
3,000 to 3,999			1			
4,000 to 4,999				1		
5,000 to 9,999	4	2	6	2	2	1
10,000 to 19,999	16	9	12	10	7	10
20,000 to 29,999	7	4	14	10	6	13
30,000 to 39,999	3	6	2	5	7	2
40,000 to 49,999		1	5	5	4	3
50,000 to 99,999	2	1	4	2	2	7
100,000 & over			1			1
Operator—						
\$1 to 999			16			3
1,000 to 1,999			15			10
2,000 to 2,999			9			14
3,000 to 3,999		1	2			4
4,000 to 4,999		3	1	1	3	2
5,000 to 9,999		4	2	2	3	4
10,000 to 19,999		10		10	11	
20,000 to 29,999		3		10	7	
30,000 to 39,999		2		5	2	
40,000 to 49,999				5	2	
50,000 to 99,999				2		
Landlord—						
\$1 to 999					2	
1,000 to 1,999		1			1	
2,000 to 2,999		1			5	
3,000 to 3,999		3	1		2	
4,000 to 4,999		1	1		1	
5,000 to 9,999		10	5		4	1
10,000 to 19,999		6	14		10	14
20,000 to 29,999			12		1	11
30,000 to 39,999			3		1	1
40,000 to 49,999		1	4		1	2
50,000 to 99,999			5			7
100,000 & over						1

TABLE 54.—Variations in farm income of owner, owner-additional, and tenant farms, 1913 and 1918.

Groups.	1913			1918		
	Owner farms (32).	Owner-additional farms (23).	Tenant farms (45).	Owner farms (35).	Owner-additional farms (28).	Tenant farms (37).
Farm income per farm:	Number.	Number.	Number.	Number.	Number.	Number.
Farm—						
\$0	1					
1 to 499	6	1	3	3	1	
500 to 999	8	5	9	2	1	3
1,000 to 1,499	9	7	13	2	3	2
1,500 to 1,999	2	6	6	12	3	3
2,000 to 2,499	3		4	3	6	8
2,500 to 2,999	1	2	6	3	1	7
3,000 to 3,999	2	1	2	4	5	5
4,000 to 4,999			2	3	5	2
5,000 to 5,999		1			1	1
6,000 to 6,999				2	2	2
7,000 to 7,999				1		1
8,000 to 8,999						1
9,000 to 9,999						1
10,000 and over						1

TABLE 54.—Variations in farm income of owner, owner-additional, and tenant farms, 1913 and 1918—Continued.

Groups.	1913			1918		
	Owner farms (32).	Owner-additional farms (23).	Tenant farms (45).	Owner farms (35).	Owner-additional farms (28).	Tenant farms (37).
Farm income per farm—Continued.	Number.	Number.	Number.	Number.	Number.	Number.
Operator—						
\$0.....	1					
1 to 499.....	6	3	12	3	2	2
500 to 999.....	8	7	21	2	1	10
1,000 to 1,499.....	9	9	7	2	5	8
1,500 to 1,999.....	2		4	12	6	8
2,000 to 2,499.....	3	1	1	3	4	3
2,500 to 2,999.....	1	1		3	2	2
3,000 to 3,999.....	2	2		4	3	2
4,000 to 4,999.....				3	3	2
5,000 to 5,999.....					2	
6,000 to 6,999.....				2		
7,000 to 7,999.....				1		
Landlord—						
\$0.....			1			
1 to 499.....		17	14		12	5
500 to 999.....		5	19		9	7
1,000 to 1,499.....			5		4	9
1,500 to 1,999.....			3		2	7
2,000 to 2,499.....			2			2
2,500 to 2,999.....		1			1	1
3,000 to 3,999.....			1			4
4,000 to 4,999.....						
5,000 to 5,999.....						1
6,000 to 6,999.....						
7,000 to 7,999.....						
8,000 to 8,999.....						1

TABLE 55.—Variations in labor income of owner, owner-additional, and tenant farms, 1913 and 1918.

Groups.	1913			1918		
	Owner farms (32).	Owner-additional farms (23).	Tenant farms (45).	Owner farms (35).	Owner-additional farms (28).	Tenant farms (37).
Labor income per farm:	Number.	Number.	Number.	Number.	Number.	Number.
Farm—						
\$0.....	13	7	12	4	2	3
1 to 499.....	11	8	21	7	2	3
500 to 999.....	6	6	6	9	5	8
1,000 to 1,499.....	2		3	4	7	3
1,500 to 1,999.....		1	3	5	3	11
2,000 to 2,499.....				3	4	1
2,500 to 2,999.....		1		1	2	3
3,000 to 3,999.....				2	2	1
4,000 to 4,999.....						2
5,000 to 5,999.....					1	2
Operator—						
\$0.....		3			3	
1 to 499.....		12	15		1	4
500 to 999.....		5	20		5	10
1,000 to 1,499.....		1	6		9	7
1,500 to 1,999.....		1	4		3	7
2,000 to 2,499.....		1			2	4
2,500 to 2,999.....					3	
3,000 to 3,999.....					2	5

TABLE 56.—Variations in per cent return on capital of owner, owner-additional, and tenant farms, 1913 and 1918.

Groups.	1913			1918		
	Owner farms (32).	Owner-additional farms (23).	Tenant farms (45).	Owner farms (35).	Owner-additional farms (28).	Tenant farms (37).
Per cent return on capital per farm:	Number.	Number.	Number.	Number.	Number.	Number.
Farm—						
0.	4	1		3	1	1
0.1 to 0.9.	1		2			
1.0 to 1.9.	2	1	4	2	1	1
2.0 to 2.9.	4	3	3	1		1
3.0 to 3.9.	5	2	3	1		1
4.0 to 4.9.	8	5	13		1	3
5.0 to 5.9.	1	2	6	3	2	6
6.0 to 6.9.	4	5	2	4	2	1
7.0 to 7.9.	2	1	4	5	5	5
8.0 to 8.9.		2	4	4	5	2
9.0 to 9.9.		1	1	4	2	5
10.0 to 14.9.	1		3	5	8	8
15.0 to 19.9.					1	3
Operator—						
0.		3	6		2	2
0.1 to 0.9.						1
1.0 to 1.9.						
2.0 to 2.9.		2				1
3.0 to 3.9.		1			1	
4.0 to 4.9.		3	1			
5.0 to 5.9.		2			1	1
6.0 to 6.9.		4			2	
7.0 to 7.9.		3			3	1
8.0 to 8.9.		2			3	
9.0 to 9.9.		2			3	
10.0 to 14.9.			2		10	2
15.0 to 19.9.		1	5		1	4
20.0 to 24.9.			7		2	2
25.0 to 29.9.			4			4
30.0 to 34.9.			3			1
35.0 to 39.9.			2			3
40.0 to 44.9.			1			1
45.0 to 49.9.			3			2
50.0 to 54.9.			2			1
55.0 to 59.9.			1			3
60.0 to 64.9.			2			
65.0 to 69.9.						1
70.0 to 74.9.						3
75.0 to 79.9.			1			
80.0 to 84.9.			1			1
85.0 to 89.9.						2
90.0 to 94.9.			1			1
95.0 to 99.9.						
100.0 and over.			3			
Landlord—						
0.			1			
0.1 to 0.9.			1			
1.0 to 1.9.		1	2		1	2
2.0 to 2.9.		3	13			4
3.0 to 3.9.		5	13			3
4.0 to 4.9.		7	5		2	8
5.0 to 5.9.		4	4		8	4
6.0 to 6.9.		2	4		3	6
7.0 to 7.9.					7	5
8.0 to 8.9.					2	3
9.0 to 9.9.			2		1	
10.0 to 14.9.		1			2	2
15.0 to 19.9.					1	
20.0 to 24.9.						
25.0 to 29.9.					1	

It should be observed that there were various forms of rental. A few tenants rented for cash, or part cash and part share of the crops, but most of them rented for half of the crops, or half of the crops and livestock. In the two former instances, the tenant furnished all the working capital; in the last instance, the landlord

furnished an appreciable part of the working capital, particularly that represented by livestock other than work animals.

All tenant farms were included in Table 50, but in Tables 57 and 58 data are shown for the two prevailing forms of rental separately—that of a half share of crops, and that of a half share of crops and livestock. (See Tables 59 and 60 for statements in more condensed form for each year.) These data bring out that farms which were rented for half the crops and livestock were on the average considerably larger than those which were rented for half of crops only. Renting for a half share of crops and livestock also enabled tenants to operate larger farms with given amounts of capital, in that they furnished only part of the working capital (the landlords furnishing part), while when renting for a half share of crops the tenants furnished all the working capital.

TABLE 57.—*Summary of the business of farms operated by tenants for one-half share of crops.*

Item.	Average of 1910, and 1913-1915.			Average of 1916-1919.		
Acres per farm.....	106			101		
Waste land.....	4			3		
Woodland not pastured.....	2			1		
Permanent pasture.....	9			8		
Untillable.....	7			6		
Tillable.....	2			2		
Rotation pasture.....	9			9		
Crops.....	82			80		
Corn.....	38			37		
Wheat.....	8			6		
Rye.....				1		
Oats.....	24			22		
Hay.....	9			10		
Fruit.....						
Other crops.....	3			4		
Acres, second-cropped.....	5			2		
Yield per acre:						
Corn..... bushels.....	48			40		
Wheat..... do.....	18			18		
Rye..... do.....				14		
Oats..... do.....	42			40		
Hay..... tons.....	1.4			1.3		
	Farm.	Tenant.	Landlord.	Farm.	Tenant.	Landlord.
Livestock:						
Productive animal units, total.....	11.8	11.0	0.8	11.8	11.6	0.2
Cattle.....	3.4	3.1	.3	4.1	4.0	.1
Colts.....	.8	.8		.6	.6	
Sheep.....	.3	.2	.1	.2	.2	
Hogs.....	6.3	5.9	.4	5.8	5.7	.1
Poultry.....	1.0	1.0		1.1	1.1	
Receipts per animal unit.....	\$62	\$62	\$31	\$109	\$110	\$19
Number of work animals.....	3.9	3.9		4.0	4.0	
Labor, total..... months.....	16.8	16.7	.1	16.2	16.2	
Regular hired..... do.....	2.8	2.8		1.9	1.9	
Extra hired..... do.....	1.0	1.0		.6	.6	
Family..... do.....	1.0	.9	.1	1.7	1.7	
Operators..... do.....	12.0	12.0		12.0	12.0	

TABLE 57.—Summary of the business of farms operated by tenants for one-half share of crops—Continued.

Item.	Farm.	Tenant.	Landlord.	Farm.	Tenant.	Landlord.
Capital, total.....	\$19,581	\$1,498	\$18,088	\$21,487	\$1,915	\$19,522
Real estate.....	18,044	-----	18,044	19,468	-----	19,468
Land.....	16,928	-----	16,928	18,011	-----	18,011
Dwelling.....	621	-----	621	738	-----	738
Other buildings.....	495	-----	495	719	-----	719
Working capital.....	1,537	1,493	44	1,969	1,915	54
Livestock.....	1,005	976	29	1,270	1,242	28
Machinery.....	253	248	5	297	292	5
Feed.....	226	219	7	361	342	19
Cash to run farm.....	53	50	3	41	39	2
Value real estate per acre.....	-----	-----	171	-----	-----	194
Receipts, total.....	1,844	1,061	841	2,978	1,760	1,344
Crops.....	1,072	333	777	1,645	445	1,300
Corn.....	578	123	487	819	104	811
Wheat.....	96	41	55	236	109	127
Rye.....	-----	-----	-----	24	10	14
Oats.....	297	130	171	448	191	259
Hay.....	44	9	37	79	9	72
Fruit.....	3	1	2	-----	-----	-----
Clover seed.....	39	16	23	21	12	9
Other crops.....	15	13	2	18	10	8
Livestock and products.....	738	694	41	1,286	1,270	16
Dairy products.....	58	58	-----	123	123	-----
Cattle.....	80	73	7	113	110	3
Colts.....	53	53	-----	47	47	-----
Sheep and wool.....	7	6	1	22	18	4
Hogs.....	462	429	33	849	840	9
Poultry and eggs.....	70	70	-----	132	132	-----
Increase in feed inventory.....	8	5	3	-----	-----	-----
Cash rent.....	-----	-----	20	-----	-----	26
Other receipts.....	34	34	-----	47	45	2
Expenses, total.....	551	395	214	779	644	261
Hired labor.....	129	129	-----	98	98	-----
Family labor.....	26	23	3	58	58	-----
Repair and depreciation:	-----	-----	-----	-----	-----	-----
Machinery.....	43	42	1	55	54	1
Dwelling.....	19	-----	19	22	-----	22
Other buildings.....	23	-----	23	30	-----	30
Repair fences, drains, etc.....	33	-----	33	35	-----	35
Feed purchased.....	30	65	3	106	206	-----
Seeds purchased.....	18	11	7	52	24	28
Fertilizer.....	4	2	2	16	8	8
Machine work hired.....	43	40	3	51	49	2
Insurance.....	6	3	3	6	4	2
Taxes.....	134	18	116	158	27	131
Decrease in work animals.....	5	5	-----	28	28	-----
Decrease in feed inventory.....	-----	-----	-----	4	3	1
Cash rent.....	-----	20	-----	-----	26	-----
Other expenses.....	38	37	1	60	59	1
Farm income.....	1,293	666	627	2,199	1,116	1,083
Interest on capital, at 5 per cent.....	979	75	-----	1,072	95	-----
Labor income.....	314	591	-----	1,127	1,021	-----
Operator's labor and management.....	314	314	-----	488	488	-----
Per cent return on capital.....	5.0	23.6	3.5	8.0	32.8	5.5
Family living from the farm.....	214	214	-----	328	328	-----

See note, Table 50.

TABLE 58.—Summary of the business of farms operated by tenants for one-half share of crops and livestock.

Item.	Average of 1910 and 1913-1915.			Average of 1916-1919.		
Acres per farm.....	188			177		
Waste land.....	7			5		
Woodland not pastured.....	2			3		
Permanent pasture.....	19			18		
Untillable.....	13			12		
Tillable.....	6			6		
Rotation pasture.....	21			23		
Crops:	139			127		
Corn.....	55			60		
Wheat.....	25			12		
Rye.....				2		
Oats.....	31			36		
Hay.....	15			3		
Fruit.....	1			1		
Other crops.....	12			3		
Acres second-cropped.....	5			1		
Yields per acre:						
Corn.....bushels.....	50			42		
Wheat.....do.....	20			15		
Rye.....do.....				18		
Oats.....do.....	43			45		
Hay.....tons.....	1.3			1.3		
	Farm.	Tenant.	Landlord.	Farm.	Tenant.	Landlord.
Livestock:						
Productive animal units, total.....	29.4	15.8	13.6	25.3	13.9	11.4
Cattle.....	10.8	5.8	5.0	10.3	5.7	4.6
Colts.....	1.1	.8	.3	.8	.6	.2
Hogs.....	15.5	7.7	7.8	12.8	6.4	6.4
Sheep.....	.6	.3	.3	.2	.1	.1
Poultry.....	1.4	1.2	.2	1.2	1.1	.1
Receipts per animal unit.....	\$66	\$66	\$65	\$118	\$112	\$126
Number of work animals.....	6.4	5.1	1.3	5.5	4.9	.6
Labor, total.....months.....	22.2	22.2		21.4	21.4	
Regular hired.....do.....	5.5	5.5		4.3	4.3	
Extra hired.....do.....	1.7	1.7		2.0	2.0	
Family.....do.....	3.0	3.0		3.1	3.1	
Operator's.....do.....	12.0	12.0		12.0	12.0	
Capital, total.....	\$37,810	\$2,347	\$35,463	\$41,930	\$2,845	\$39,085
Real estate.....	34,196		34,196	37,507	8	37,499
Land.....	32,001		32,001	34,709		34,709
Dwelling.....	959		959	1,142		1,142
Other buildings.....	1,236		1,236	1,656	8	1,648
Working capital.....	3,614	2,347	1,267	4,423	2,837	1,586
Livestock.....	2,285	1,501	784	2,902	1,860	1,042
Machinery.....	487	398	89	542	447	95
Feed.....	655	329	326	830	428	402
Cash to run farm.....	187	119	68	149	102	47
Value real estate per acre.....			\$182			\$212
Receipts, total.....	3,238	1,699	1,548	4,816	2,480	2,399
Crops.....	1,258	617	648	1,742	893	912
Corn.....	308	150	163	465	272	250
Wheat.....	419	209	210	458	226	233
Rye.....				34	17	17
Oats.....	379	186	193	709	347	362
Hay.....	21	7	16	53	21	37
Fruit.....	2	1	1			
Clover seed.....	120	61	59	16	8	8
Other crops.....	9	3	6	7	2	5
Livestock and products.....	1,927	1,040	887	2,970	1,551	1,419
Dairy products.....	70	55	15	146	117	29
Cattle.....	424	219	205	586	309	277
Colts.....	91	66	25	58	38	20
Sheep and wool.....	42	21	21	13	8	5
Hogs.....	1,187	579	608	2,024	956	1,068
Poultry and eggs.....	113	100	13	143	123	20

TABLE 58.—*Summary of the business of farms operated by tenants for one-half share of crops and livestock—Continued.*

Item.	Farm.	Tenant.	Landlord.	Farm.	Tenant.	Landlord.
Receipts, total—Continued. /						
Increase in feed inventory.....	\$12	\$2	\$10	\$75	\$10	\$64
Cash rent.....			2			
Other receipts.....	41	40	1	29	26	4
Expenses, total.....	1,166	687	488	1,594	938	725
Hired labor.....	248	247	1	283	273	10
Family labor.....	76	76		90	95	
Repair and depreciation:						
Machinery.....	81	69	12	109	92	17
Dwelling.....	28		28	35		35
Other buildings.....	42		42	54		54
Repair fences, drains, etc.....	45		45	56		56
Feed purchased.....	168	106	69	313	184	193
Seeds purchased.....	31	18	13	92	48	44
Fertilizer.....	20	10	10	26	13	13
Machine work hired.....	79	63	16	80	63	17
Insurance.....	9	4	5	9	4	5
Taxes.....	253	24	229	293	37	256
Decrease in work animals.....	11	8	3	49	42	7
Cash rent.....		2				
Other expenses.....	75	60	15	105	87	18
Farm income.....	2,072	1,012	1,060	3,217	1,542	1,674
Interest on capital at 5 per cent.....	1,890	118		2,097	142	
Labor income.....	182	894		1,120	1,400	
Operator's labor and management.....	341	341		507	507	
Per cent return on capital.....	4.6	28.6	3.0	6.5	36.4	4.3
Family living from the farm.....	253	253		408	408	

See note, Table 50.

TABLE 59.—*Summary for farms operated by tenants for one-half share of crops.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919
Number of farms.....	19	18	18	16	13	13	16	16
Acres in farm.....	111	96	105	112	105	105	97	95
Capital:								
Farm.....	\$17,053	\$18,956	\$20,569	\$21,744	\$21,164	\$21,177	\$21,771	\$21,632
Tenant.....	1,318	1,346	1,658	1,651	1,648	1,957	1,009	2,145
Landlord.....	15,735	17,610	18,911	20,093	19,516	19,220	19,862	19,487
Receipts:								
Farm.....	1,627	1,799	1,866	2,120	2,618	2,726	3,196	3,466
Tenant.....	921	1,059	1,071	1,229	1,523	1,698	2,035	1,858
Landlord.....	725	838	835	968	1,188	1,104	1,341	1,761
Expenses:								
Farm.....	554	475	576	628	677	779	875	877
Tenant.....	353	390	412	460	532	597	808	710
Landlord.....	220	183	204	245	238	258	247	320
Farm income:								
Farm.....	1,073	1,324	1,290	1,492	1,941	1,947	2,321	2,589
Tenant.....	568	669	659	769	991	1,101	1,227	1,148
Landlord.....	505	655	631	723	950	846	1,694	1,441
Labor income:								
Farm.....	220	376	261	405	883	888	1,232	1,508
Tenant.....	502	602	576	686	909	1,003	1,132	1,041
Per cent return on capital:								
Farm.....	4.5	5.4	4.2	5.4	7.4	7.1	9.0	9.1
Tenant.....	21.9	27.6	20.0	27.3	37.9	33.8	45.7	24.4
Landlord.....	3.2	3.7	3.3	3.6	4.9	4.4	6.5	7.4
Family living from the farm:								
Farm.....	246	172	215	221	265	295	355	396
Tenant.....	246	172	215	221	265	295	355	396

NOTE.—For apparent discrepancies, between this table and Table 57, in receipts and expenses for owner, owner-additional, and tenant farms, see note, Table 1, and note, Table 50.

TABLE 60.—*Summary for farms operated by tenants for one-half share of crops and livestock.*

Item.	1910	1913	1914	1915	1916	1917	1918	1919
Number of farms.....	15	18	19	17	18	16	15	14
Acres in farm.....	181	189	182	198	188	186	170	163
Capital:								
Farm.....	\$30,309	\$39,816	\$38,961	\$42,152	\$40,086	\$40,964	\$42,993	\$43,677
Tenant.....	2,051	2,253	2,437	2,646	2,482	2,893	2,828	3,173
Landlord.....	28,258	37,563	36,524	39,506	37,604	38,071	40,165	40,499
Receipts:								
Farm.....	3,193	3,066	3,100	3,830	3,983	4,704	5,447	5,314
Tenant.....	1,642	1,615	1,668	2,017	2,072	2,606	2,808	2,684
Landlord.....	1,561	1,463	1,432	1,845	1,930	2,408	2,655	2,630
Expenses:								
Farm.....	1,019	1,164	1,266	1,455	1,208	1,432	1,888	2,004
Tenant.....	600	666	758	871	689	1,034	1,123	1,153
Landlord.....	424	510	508	616	538	738	781	851
Farm income:								
Farm.....	2,179	1,902	1,834	2,375	2,775	3,222	3,559	3,310
Tenant.....	1,042	949	910	1,146	1,383	1,572	1,685	1,531
Landlord.....	1,137	953	924	1,229	1,392	1,650	1,874	1,779
Labor income:								
Farm.....	663	—89	—114	268	771	1,174	1,409	1,126
Tenant.....	939	836	788	1,014	1,259	1,427	1,543	1,372
Per cent return on capital:								
Farm.....	6.6	3.9	3.9	4.8	5.3	6.8	7.0	6.0
Tenant.....	34.1	26.4	24.6	29.8	41.3	39.7	40.3	26.0
Landlord.....	4.0	2.5	2.5	3.1	3.7	4.3	4.7	4.4
Family living from the farm:								
Farm.....	260	210	267	274	322	372	456	483
Tenant.....	260	210	267	274	322	372	456	483

NOTE.—For apparent discrepancies, between this table and Table 58, in receipts and expenses for owner, owner-additional, and tenant farms, see note, Table 1, and note, Table 50.

SUMMARY.

The locality in which this investigation was made is about 40 miles north of Indianapolis, Ind., and in the heart of the eastern part of the Corn Belt. The 100 farms under study averaged 127 acres in size, with 45 of them smaller than 100 acres and only 15 of them larger than 180 acres. They were smaller than the farms in some other parts of the Corn Belt.

About a third of the land is put to corn, practically all of which is harvested for grain; a little less than a third to small grains (in the ratio of about two-thirds oats, one-third wheat, with a sprinkling of rye), and a little less than a fourth to clover and timothy (about half of which was used as pasture only, and the other half for hay or clover seed, or both).

Close to half of the farms sold little or none of their corn production, while others sold varying proportions ranging from 10 to over 90 per cent. For all of the 100 farms for all of the eight years (1910, and 1913-1919), about one-fourth of the total corn production was sold as a cash crop, but varying from 16 to 30 per cent for the different years. Of the small-grain production, 51 per cent of the rye, 76 per cent of the oats, and 82 per cent of the wheat were sold as cash crops. While most of the clover and timothy were used as pasture and hay on the farms on which they were produced, the crops from about 17 per cent of the clover and timothy acreage were sold for cash as hay and clover seed.

In general, most farms should put to corn all the acreage that can be cared for well and still be consistent with a good crop rotation system and the economical use of labor and equipment.

The cropping systems on many of the farms have been well worked out. They necessarily vary on different farms on account of size of farms and the labor and equipment at hand, but the more successful farms as a rule have a little larger percentage of their land in corn than the less successful farms.

The cropping system on a given farm must also vary from year to year on account of change in the size of a farm, the labor and equipment at hand, or of a failure of some crop, but as a rule the farms hewing nearest the line in their cropping systems year in and year out were more successful than the others. This, of course, does not preclude changes in cropping systems which may be due to general economic forces.

Heavily-stocked farms as a rule were more successful than lightly-stocked farms. But in this matter the ability of the farmer to handle livestock successfully plays an important part. Instances of heavily-stocked farms, with inferior grades of stock, or with a disease epidemic such as hog cholera, or with improper care, or with improper feeding, were not uncommon.

The farms heavily stocked with hogs were usually more successful than those on which other classes of stock predominated. This does not exclude other classes of productive livestock from the farms, for there should be at least enough to supply the families with food products and to consume by-products, roughage, etc., which would otherwise be wasted from the standpoint of feed. The production of dairy products, poultry, and eggs on all farms and of beef cattle on the larger farms should be encouraged along with the production of hogs, the principal money crop of the locality.

Many of the smaller farms, in order to produce incomes to adequately support the families living on them, should increase their production by the use of more land, by intensifying their cropping systems, or by intensifying their livestock production. Some of the farmers on small farms have increased their incomes by the use of more land; some by intensifying their cropping systems by putting more land to corn and growing a few acres of a more intensive crop, tomatoes, for example; and some have increased their incomes by intensifying their livestock production by buying additional feed.

The importance of crop yields per acre, and of livestock receipts per animal, as factors of successful farming is hard to overestimate. Farms above the average of the locality in both of these matters were seldom unsuccessful, while farms below the average in both seldom were successful.

Item.	Farms with crop yields per acre and livestock receipts per animal—	
	Above the average of the locality averaged.	Below the average of the locality averaged.
Farm incomes.	\$2,789	\$1,256
Labor incomes.	1,243	93
Per cent on capital.	7.7	3.5
Family living from the farm.	\$370	\$324

The efficient use of man labor and horse labor is an important factor in the successful operation of farms. The more successful farms cared for more acres of corn and more livestock per man than the less successful ones. They also cared for more acres of crops other than corn, and they had more machinery per work animal.

The variations in relative prices of corn and hogs during different years were important factors in the incomes of given farms. In 1910, the price of 100 pounds of hogs equalled the price of 18.5 bushels of corn; and in 1916 the price of 100 pounds of hogs was equivalent to that of only 10.5 bushels of corn. In 1910, when they were relatively highest, hogs were the largest item of the receipts on 75 per cent of the more successful farms, and corn was the largest item on 8 per cent of this class of farms. In 1916, when hogs were relatively lowest, they were the most important source of receipts on 47 per cent of the more successful farms, and corn was the most important item on 45 per cent of this class of farms.

About 40 per cent of these farms were operated by tenants. Some of the tenants furnished all of the working capital and gave the landlords half the crops for the use of the land. Other tenants furnished only part of the working capital, the landlords going half-and-half with the tenants in the livestock production. Very few tenants rented for cash.

Tenants, as a rule, operated larger farms than owners, and tenants renting for a half share of the crops operated smaller farms than tenants who rented for a half share of the crops and livestock.

Tenants on smaller farms received a larger share of the farm incomes than did the landlords; but tenants on the larger farms received a smaller share of the farm incomes than did the landlords.

Data for each farm for each year have been mimeographed and are available in this form for distribution upon application to the Bureau of Agricultural Economics, Washington, D. C., to those wishing to make future studies of them.

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